Chapter 2. General Control

Section 1. General

2-1-1. ATC SERVICE

The primary purpose of the ATC system is to prevent a collision between aircraft operating in the system and to organize and expedite the flow of traffic. In addition to its primary function, the ATC system has the capability to provide (with certain limitations) additional services. The ability to provide additional services is limited by many factors, such as the volume of traffic, frequency congestion, quality of radar, controller workload, higher priority duties, and the pure physical inability to scan and detect those situations that fall in this category. It is recognized that these services cannot be provided in cases in which the provision of services is precluded by the above factors. Consistent with the aforementioned conditions, controllers shall provide additional service procedures to the extent permitted by higher priority duties and other circumstances. The provision of additional services is not optional on the part of the controller, but rather is required when the work situation permits. Provide air traffic control service in accordance with the procedures and minima in this order except when:

a. A deviation is necessary to conform with ICAO Documents, National Rules of the Air, or special agreements where the U.S. provides air traffic control service in airspace outside the U.S. and its possessions or:

NOTE-
Pilots are required to abide by CFR's or other applicable regulations regardless of the application of any procedure or minima in this order.

b. Other procedures/minima are prescribed in a letter of agreement, FAA directive, or a military document, or:

NOTE-
These procedures may include altitude reservations, air refueling, fighter interceptor operations, law enforcement, etc.

REFERENCE-
FAAO 7110.65, Procedural Letters of Agreement, Para 1-1-8.

c. A deviation is necessary to assist an aircraft when an emergency has been declared.

REFERENCE-
FAAO 7110.65, Safety Alert, Para 2-1-6.
FAAO 7110.65, Emergencies, Chapter 10
FAAO 7110.65, Merging Target Procedures, Para 5-1-8.

2-1-2. DUTY PRIORITY

a. Give first priority to separating aircraft and issuing safety alerts as required in this order. Good judgment shall be used in prioritizing all other provisions of this order based on the requirements of the situation at hand.

REFERENCE-
FAAO 7110.65, Safety Alert, Para 2-1-6.

NOTE-
Because there are many variables involved, it is virtually impossible to develop a standard list of duty priorities that would apply uniformly to every conceivable situation. Each set of circumstances must be evaluated on its own merit, and when more than one action is required, controllers shall exercise their best judgment based on the facts and circumstances known to them. That action which is most critical from a safety standpoint is performed first.

b. Provide additional services to the extent possible, contingent only upon higher priority duties and other factors including limitations of radar, volume of traffic, frequency congestion, and workload.

2-1-3. PROCEDURAL PREFERENCE

a. Use automation procedures in preference to nonautomation procedures when workload, communications, and equipment capabilities permit.

b. Use radar separation in preference to nonradar separation when it will be to an operational advantage and workload, communications, and equipment permit.

c. Use nonradar separation in preference to radar separation when the situation dictates that an operational advantage will be gained.

NOTE-
One situation may be where vertical separation would preclude excessive vectoring.

2-1-4. OPERATIONAL PRIORITY

Provide air traffic control service to aircraft on a "first come, first served" basis as circumstances permit, except the following:

NOTE-
It is solely the pilot's prerogative to cancel an IFR flight plan. However, a pilot's retention of an IFR flight plan does not afford priority over VFR aircraft. For example, this does not preclude the requirement for the pilot of an arriving IFR aircraft to adjust his/her flight path, as necessary, to enter a traffic pattern in sequence with arriving VFR aircraft.

a. An aircraft in distress has the right of way over all other air traffic.

REFERENCE-
14 CFR Section 91.113(c).

b. Provide priority to civilian air ambulance flights "LIFEGUARD." Air carrier/taxi usage of the "LIFEGUARD" call sign, indicates that operational priority is requested. When verbally requested, provide priority to military air evacuation flights (AIR EVAC, MED EVAC) and scheduled air carrier/air taxi flights. Assist the pilots of air ambulance/evacuation aircraft to avoid areas of significant weather and turbulent conditions. When requested by a pilot, provide notifications to expedite ground handling of patients, vital organs, or urgently needed medical materials.

c. Provide maximum assistance to SAR aircraft performing a SAR mission.

REFERENCE-
FAAO 7110.65, Providing Assistance, Para 10-1-3.

d. Expedite the movement of presidential aircraft and entourage and any rescue support aircraft as well as related control messages when traffic conditions and communications facilities permit.

NOTE-
As used herein the terms presidential aircraft and entourage include aircraft and entourage of the President, Vice President, or other public figures when designated by the White House.

REFERENCE-
FAAO 7110.65, Aircraft Identification, Para 2-4-20.
FAAO 7210.3, Advance Coordination, Para 5-1-1.

e. Provide special handling, as required to expedite Flight Check aircraft.

NOTE-
It is recognized that unexpected wind conditions, weather, or heavy traffic flows may affect controller's ability to provide priority or special handling at the specific time requested.

REFERENCE-
FAAO 7110.65, Flight Check Aircraft, Para 9-1-3.

f. Expedite movement of NIGHT WATCH aircraft when NAOC (pronounced NA-YOCK) is indicated in the remarks section of the flight plan or in air/ground communications.

NOTE-
The term "NAOC" will not be a part of the call sign but may be used when the aircraft is airborne to indicate a request for special handling.

REFERENCE-
FAAO 7610.4, Applications, Para 12-1-1.

g. Provide expeditious handling for any civil or military aircraft using the code name "FLYNET."

REFERENCE-
FAAO 7110.65, FLYNET, Para 9-3-6.
FAAO 7610.4, "FLYNET" Flights, Nuclear Emergency Teams, Para 12-4-1.

h. Provide expeditious handling of aircraft using the code name "Garden Plot" only when CARF notifies you that such priority is authorized. Refer any questions regarding flight procedures to CARF for resolution.

NOTE-
Garden Plot flights require priority movement and are coordinated by the military with CARF. State authority will contact the Regional Administrator to arrange for priority of National Guard troop movements within a particular state.

i. Provide special handling for USAF aircraft engaged in aerial sampling missions using the code name "SAMP."

REFERENCE-
FAAO 7110.65, SAMP, Para 9-3-14.
FAAO 7210.3, Atmosphere Sampling For Nuclear Contamination, Para 5-3-4.
FAAO 7610.4, Atmospheric Sampling For Nuclear Contamination, Para 12-4-3.

j. Provide maximum assistance to expedite the movement of interceptor aircraft on active air defense missions until the unknown aircraft is identified.

k. Expedite movement of Special Air Mission aircraft when SCOOT is indicated in the remarks section of the flight plan or in air/ground communications.

NOTE-
The term "SCOOT" will not be part of the call sign but may be used when the aircraft is airborne to indicate a request for special handling.

REFERENCE-
FAAO 7110.65, Law Enforcement Operations by Civil and Military Organizations, Para 9-3-9.
FAAO 7610.4, Applications, Para 12-7-1.

l. When requested, provide priority handling to TEAL and NOAA mission aircraft.

NOTE-
Priority handling may be requested by the pilot, or via telephone from CARCAH or the 53rd Weather Reconnaissance Squadron (53WRS) operations center personnel, or in the remarks section of the flight plan.

REFERENCE-
FAAO 7110.65, Weather Reconnaissance Flights, Para 9-3-16.

m. IFR aircraft shall have priority over SVFR aircraft.

REFERENCE-
FAAO 7110.65, Chapter 7, Section 5, Special VFR (SVFR).

n. Providing priority and special handling to expedite the movement of OPEN SKIES observation and demonstration flights.

NOTE-
An OPEN SKIES aircraft has priority over all "regular" air traffic. "Regular" is defined as all aircraft traffic other than:

1. Emergencies.
2. Aircraft directly involved in presidential movement.
3. Forces or activities in actual combat.
4. Lifeguard, MED EVAC, AIR EVAC and active SAR missions.

REFERENCE-
FAAO 7110.65 OPEN SKIES Treaty Aircraft, Para 9-3-19.
FAAO 7210.3, OPEN SKIES Treaty Aircraft, Para 5-3-7.
Treaty on OPEN SKIES, Treaty Document, 102-37.

o. Aircraft operating under the National Route Program are not subject to route limiting restrictions (e.g., published preferred IFR routes, letter of agreement requirements, standard operating procedures).

REFERENCE-
FAAO 7110.65, En Route Data Entries, Para 2-3-2.
FAAO 7110.65, National Route Program (NRP) Information, Para 2-2-15.
FAAO 7110.65, Route or Altitude Amendments, Para 4-2-5.
FAAO 7210.3, Chapter 17, Section 17, National Route Program.

2-1-5. EXPEDITIOUS COMPLIANCE

a. Use the word "immediately" only when expeditious compliance is required to avoid an imminent situation.

b. Use the word "expedite" only when prompt compliance is required to avoid the development of an imminent situation. If an "expedite" climb or descent clearance is issued by ATC, and subsequently the altitude to maintain is changed or restated without an expedite instruction, the expedite instruction is canceled.

c. In either case, if time permits, include the reason for this action.

2-1-6. SAFETY ALERT

Issue a safety alert to an aircraft if you are aware the aircraft is in a position/attitude which, in your judgment, places it in unsafe proximity to terrain, obstructions, or other aircraft. Once the pilot informs you action is being taken to resolve the situation, you may discontinue the issuance of further alerts. Do not assume that because someone else has responsibility for the aircraft that the unsafe situation has been observed and the safety alert issued; inform the appropriate controller.

NOTE-
1. The issuance of a safety alert is a first priority (see para 2-1-2, Duty Priority) once the controller observes and recognizes a situation of unsafe aircraft proximity to terrain, obstacles, or other aircraft. Conditions, such as workload, traffic volume, the quality/limitations of the radar system, and the available lead time to react are factors in determining whether it is reasonable for the controller to observe and recognize such situations. While a controller cannot see immediately the development of every situation where a safety alert must be issued, the controller must remain vigilant for such situations and issue a safety alert when the situation is recognized.

2. Recognition of situations of unsafe proximity may result from MSAW/E-MSAW/LAAS, automatic altitude readouts, Conflict/Mode C Intruder Alert, observations on a PAR scope, or pilot reports.

3. Once the alert is issued, it is solely the pilot's prerogative to determine what course of action, if any, will be taken.

a. Terrain/Obstruction Alert. Immediately issue/initiate an alert to an aircraft if you are aware the aircraft is at an altitude which, in your judgment, places it in unsafe proximity to terrain/obstructions. Issue the alert as follows:

PHRASEOLOGY-
(Identification) LOW ALTITUDE ALERT,

CHECK YOUR ALTITUDE IMMEDIATELY.

THE (as appropriate) MEA/MVA/MOCA/MIA IN YOUR AREA IS (altitude),

or if an aircraft is past the final approach fix (nonprecision approach),

or the outer marker,

or the fix used in lieu of the outer marker (precision approach),

and, if known, issue

THE (as appropriate) MDA/DH IS (altitude).

b. Aircraft Conflict/Mode C Intruder Alert. Immediately issue/initiate an alert to an aircraft if you are aware of another aircraft at an altitude which you believe places them in unsafe proximity. If feasible, offer the pilot an alternate course of action.

c. When an alternate course of action is given, end the transmission with the word "immediately."

PHRASEOLOGY-
TRAFFIC ALERT (call sign) (position of aircraft) ADVISE YOU TURN LEFT/RIGHT (heading),

and/or

CLIMB/DESCEND (specific altitude if appropriate) IMMEDIATELY.

REFERENCE-
FAAO 7110.65, Conflict Alert (CA) and Mode C Intruder (MCI) Alert, Para 5-14-1.
FAAO 7110.65, En Route Minimum Safe Altitude Warning (E-MSAW), Para 5-14-2.
FAAO 7110.65, CA/MCI, Para 5-15-6.
FAAO 7110.65, Altitude Filters, Para 5-2-23.

2-1-7. INFLIGHT EQUIPMENT MALFUNCTIONS

a. When a pilot reports an inflight equipment malfunction, determine the nature and extent of any special handling desired.

NOTE-
Inflight equipment malfunctions include partial or complete failure of equipment which may affect either safety and/or the ability of the flight to proceed under IFR in the ATC system. Controllers may expect reports from pilots regarding VOR, TACAN, ADF, GPS, or low frequency navigation receivers, impairment of air-ground communications capability, or other equipment deemed appropriate by the pilot (e.g. airborne weather radar). Pilots should communicate the nature and extent of any assistance desired from ATC.

b. Provide the maximum assistance possible consistent with equipment, workload, and any special handling requested.

c. Relay to other controllers or facilities who will subsequently handle the aircraft, all pertinent details concerning the aircraft and any special handling required or being provided.

2-1-8. MINIMUM FUEL

If an aircraft declares a state of "minimum fuel," inform any facility to whom control jurisdiction is transferred of the minimum fuel problem and be alert for any occurrence which might delay the aircraft en route.

NOTE-
Use of the term "minimum fuel" indicates recognition by a pilot that his/her fuel supply has reached a state where, upon reaching destination, he/she cannot accept any undue delay. This is not an emergency situation but merely an advisory that indicates an emergency situation is possible should any undue delay occur. A minimum fuel advisory does not imply a need for traffic priority. Common sense and good judgment will determine the extent of assistance to be given in minimum fuel situations. If, at any time, the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing, the pilot should declare an emergency and report fuel remaining in minutes.

2-1-9. REPORTING ESSENTIAL FLIGHT INFORMATION

Report as soon as possible to the appropriate FSS, airport manager's office, ARTCC, approach control facility, operations office, or military operations office any information concerning components of the NAS or any flight conditions which may have an adverse effect on air safety.

NOTE-
FSS's are responsible for classifying and disseminating Notices to Airmen.

REFERENCE-
FAAO 7110.65, Timely Information, Para 3-3-3.
FAAO 7110.65, Service Limitations, Para 5-1-6.
FAAO 7210.3, Periodic Maintenance, Para 3-1-2.
USN, See OPNAVINST 3721.30.

2-1-10. NAVAID MALFUNCTIONS

a. When an aircraft reports a ground-based NAVAID malfunction, take the following actions:

1. Request a report from a second aircraft.

2. If the second aircraft reports normal operations, continue use and inform the first aircraft. Record the incident on FAA Form 7230-4 or appropriate military form.

3. If the second aircraft confirms the malfunction or in the absence of a second aircraft report, activate the standby equipment or request the monitor facility to activate.

4. If normal operation is reported after the standby equipment is activated, continue use, record the incident on FAA Form 7230-4 or appropriate military form, and notify Airway Facilities (AF) personnel (the Systems Engineer of the ARTCC when an en route aid is involved).

5. If continued malfunction is reported after the standby equipment is activated or the standby equipment cannot be activated, inform AF personnel and request advice on whether or not the aid should be shut down. In the absence of a second aircraft report, advise the AF personnel of the time of the initial aircraft report and the estimated time a second aircraft report could be obtained.

b. When an aircraft reports a GPS/GNSS anomaly, request the following information and/or take the following actions:

1. Record the following minimum information:

   (a) Aircraft call sign.

   (b) Location.

   (c) Altitude.

   (d) Date/time of occurrence.

2. Direct the aircraft to file a complete report with AFSS/FSS.

3. Broadcast the anomaly report to other aircraft as necessary.

2-1-11. USE OF MARSA

a. MARSA may only be applied to military operations specified in a letter of agreement or other appropriate FAA or military document.

NOTE-
Application of MARSA is a military command prerogative. It will not be invoked indiscriminately by individual units or pilots. It will be used only for IFR operations requiring its use. Commands authorizing MARSA will ensure that its implementation and terms of use are documented and coordinated with the control agency having jurisdiction over the area in which the operations are conducted. Terms of use will assign responsibility and provide for separation among participating aircraft.

b. ATC facilities do not invoke or deny MARSA. Their sole responsibility concerning the use of MARSA is to provide separation between military aircraft engaged in MARSA operations and other nonparticipating IFR aircraft.

c. DOD shall ensure that military pilots requesting special-use airspace/ATCAA's have coordinated with the scheduling agency, have obtained approval for entry, and are familiar with the appropriate MARSA procedures. ATC is not responsible for determining which military aircraft are authorized to enter special-use airspace/ATCAA's.

REFERENCE-
FAAO 7110.65, Military Aerial Refueling, Para 9-3-10.

2-1-12. MILITARY PROCEDURES

Military procedures in the form of additions, modifications, and exceptions to the basic FAA procedure are prescribed herein when a common procedure has not been attained or to fulfill a specific requirement. They shall be applied by:

a. ATC facilities operated by that military service.

EXAMPLE-
1. An Air Force facility providing service for an Air Force base would apply USAF procedures to all traffic regardless of class.

2. A Navy facility providing service for a Naval Air Station would apply USN procedures to all traffic regardless of class.

b. ATC facilities, regardless of their parent organization (FAA, USAF, USN, USA), supporting a designated military airport exclusively. This designation determines which military procedures are to be applied.

EXAMPLE-
1. An FAA facility supports a USAF base exclusively; USAF procedures are applied to all traffic at that base.

2. An FAA facility provides approach control service for a Naval Air Station as well as supporting a civil airport; basic FAA procedures are applied at both locations by the FAA facility.

3. A USAF facility supports a USAF base and provides approach control service to a satellite civilian airport; USAF procedures are applied at both locations by the USAF facility.

REFERENCE-
FAAO 7110.65, Annotations, Para 1-2-5.

c. Other ATC facilities when specified in a letter of agreement.

EXAMPLE-
A USAF unit is using a civil airport supported by an FAA facility- USAF procedures will be applied as specified in a letter of agreement between the unit and the FAA facility to the aircraft of the USAF unit. Basic FAA procedures will be applied to all other aircraft.

2-1-13. FORMATION FLIGHTS

Control formation flights as a single aircraft. When individual control is requested, issue advisory information which will assist the pilots in attaining separation. When pilot reports indicate separation has been established, issue control instructions as required.

NOTE-
1. Separation responsibility between aircraft within the formation during transition to individual control rests with the pilots concerned until standard separation has been attained.

2. Formation join-up and breakaway will be conducted in VFR weather conditions unless prior authorization has been obtained from ATC or individual control has been approved.

REFERENCE-
FAAO 7110.65, Additional Separation for Formation Flights, Para 5-5-8.
P/CG Term- Formation Flight.

2-1-14. COORDINATE USE OF AIRSPACE

a. Ensure that the necessary coordination has been accomplished before you allow an aircraft under your control to enter another controller's area of jurisdiction.

b. Before you issue control instructions directly or relay through another source to an aircraft which is within another controller's area of jurisdiction that will change that aircraft's heading, route, speed, or altitude, ensure that coordination has been accomplished with each of the controllers listed below whose area of jurisdiction is affected by those instructions unless otherwise specified by a letter of agreement or a facility directive:

1. The controller within whose area of jurisdiction the control instructions will be issued.

2. The controller receiving the transfer of control.

3. Any intervening controller(s) through whose area of jurisdiction the aircraft will pass.

c. If you issue control instructions to an aircraft through a source other than another controller (e.g. ARINC, FSS, another pilot) ensure that the necessary coordination has been accomplished with any controllers listed in subparas b1, 2, and 3, whose area of jurisdiction is affected by those instructions unless otherwise specified by a letter of agreement or a facility directive.

REFERENCE-
FAAO 7110.65, Control Transfer, Para 2-1-15.
FAAO 7110.65, Adjacent Airspace, Para 5-5-10.
FAAO 7110.65, Transferring Controller Handoff, Para 5-4-5.
FAAO 7110.65, Receiving Controller Handoff, Para 5-4-6.

2-1-15. CONTROL TRANSFER

a. Transfer control of an aircraft in accordance with the following conditions:

1. At a prescribed or coordinated location, time, fix, or altitude; or,

2. At the time a radar handoff and frequency change to the receiving controller have been completed and when authorized by a facility directive or letter of agreement which specifies the type and extent of control that is transferred.

REFERENCE-
FAAO 7110.65, Coordinate Use of Airspace, Para 2-1-14.
FAAO 7110.65, Transferring Controller Handoff, Para 5-4-5.
FAAO 7110.65, Receiving Controller Handoff, Para 5-4-6.

b. Transfer control of an aircraft only after eliminating any potential conflict with other aircraft for which you have separation responsibility.

c. Assume control of an aircraft only after it is in your area of jurisdiction unless specifically coordinated or as specified by letter of agreement or a facility directive.

2-1-16. SURFACE AREAS

a. Coordinate with the appropriate nonapproach control tower on an individual aircraft basis before issuing a clearance which would require flight within a surface area for which the tower has responsibility unless otherwise specified in a letter of agreement.

REFERENCE-
FAAO 7210.3, Letters of Agreement, Para 4-3-1.
14 CFR Section 91.127, Operating on or in the Vicinity of an Airport in Class E Airspace.
P/CG Term- Surface Area.

b. Coordinate with the appropriate control tower for transit authorization when you are providing radar traffic advisory service to an aircraft that will enter another facility's airspace.

NOTE-
The pilot is not expected to obtain his/her own authorization through each area when in contact with a radar facility.

c. Transfer communications to the appropriate facility, if required, prior to operation within a surface area for which the tower has responsibility.

REFERENCE-
FAAO 7110.65, Radio Communications Transfer, Para 2-1-17.
FAAO 7110.65, Surface Area Restrictions, Para 3-1-11.
FAAO 7110.65, Application, Para 7-6-1.
14 CFR Section 91.129, Operations in Class D Airspace.

2-1-17. RADIO COMMUNICATIONS TRANSFER

a. Transfer radio communications before an aircraft enters the receiving controller's area of jurisdiction unless otherwise coordinated or specified by a letter of agreement or a facility directive.

b. Transfer radio communications by specifying the following:

NOTE-
Radio communications transfer procedures may be specified by a letter of agreement or contained in the route description of an MTR as published in the DOD Planning AP/1B (AP/3).

1. The facility name or location name and terminal function to be contacted. *TERMINAL:* Omit the location name when transferring communications to another controller within your facility; except when instructing the aircraft to change frequency for final approach guidance include the name of the facility.

2. Frequency to use except the following may be omitted:

(a) FSS frequency.

(b) Departure frequency if previously given or published on a DP chart for the procedure issued.

(c) *TERMINAL:*

(1) Ground or local control frequency if in your opinion the pilot knows which frequency is in use.

(2) The numbers preceding the decimal point if the ground control frequency is in the 121 MHz bandwidth.

EXAMPLE-
"Contact Tower."
"Contact Ground."
"Contact Ground Point Seven."
"Contact Ground, One Two Zero Point Eight."
"Contact Huntington Radio."
"Contact Departure."
"Contact Los Angeles Center, One Two Three Point Four."

3. Time, fix, altitude, or specifically when to contact a facility. You may omit this when compliance is expected upon receipt.

NOTE-
AIM, para 5-3-1, ARTCC Communications, informs pilots that they are expected to maintain a listening watch on the transferring controller's frequency until the time, fix, or altitude specified.

PHRASEOLOGY-
CONTACT (facility name or location name and terminal function), (frequency).

If required,

AT (time, fix, or altitude).

c. In situations where an operational advantage will be gained, and following coordination with the receiving controller, you may instruct aircraft on the ground to monitor the receiving controller's frequency.

EXAMPLE-
"Monitor Tower."
"Monitor Ground."
"Monitor Ground Point Seven."
"Monitor Ground, One Two Zero Point Eight."

d. In situations where a sector has multiple frequencies or when sectors are combined using multiple frequencies and the aircraft will remain under your jurisdiction, transfer radio communication by specifying the following:

PHRASEOLOGY-
(Identification) CHANGE TO MY FREQUENCY (state frequency).

EXAMPLE-
"United two twenty-two change to my frequency one two three point four."

REFERENCE-
AIM, Contact Procedures, Para 4-2-3.

e. Avoid issuing a frequency change to helicopters known to be single-piloted during air-taxiing, hovering, or low-level flight. Whenever possible, relay necessary control instructions until the pilot is able to change frequency.

NOTE-
Most light helicopters are flown by one pilot and require the constant use of both hands and feet to maintain control. Although Flight Control Friction Devices assist the pilot, changing frequency near the ground could result in inadvertent ground contact and consequent loss of control. Pilots are expected to advise ATC of their single-pilot status if unable to comply with a frequency change.

REFERENCE-
AIM, Communications, Para 4-3-14.

f. In situations where the controller does not want the pilot to change frequency but the pilot is expecting or may want a frequency change, use the following phraseology.

PHRASEOLOGY-
REMAIN THIS FREQUENCY.

REFERENCE-
FAAO 7110.65, Clearance Information, Para 4-7-1.
FAAO 7110.65, Communication Transfer, Para 5-12-8.

2-1-18. OPERATIONAL REQUESTS

Respond to a request from another controller, a pilot or vehicle operator by one of the following verbal means:

a. Restate the request in complete or abbreviated terms followed by the word "APPROVED." The phraseology "APPROVED AS REQUESTED" may be substituted in lieu of a lengthy readback.

PHRASEOLOGY-
(Requested operation) APPROVED.

or

APPROVED AS REQUESTED.

b. State restrictions followed by the word "APPROVED."

PHRASEOLOGY-
(Restriction and/or additional instructions, requested operation) APPROVED.

c. State the word "UNABLE" and, time permitting, a reason.

PHRASEOLOGY-
UNABLE (requested operation).

and when necessary,

(reason and/or additional instructions.)

d. State the words "STAND BY."

NOTE-
"STAND BY" is not an approval or denial. The controller acknowledges the request and will respond at a later time.

REFERENCE-
FAAO 7110.65, Traffic Advisories, Para 2-1-21.
FAAO 7110.65, Route or Altitude Amendments, Para 4-2-5.
FAAO 7110.65, Methods, Para 7-9-3.

2-1-19. WAKE TURBULENCE

a. Apply wake turbulence procedures to aircraft operating behind heavy jets/B757's and, where indicated, to small aircraft behind large aircraft.

NOTE-
Para 5-5-4, Minima, specifies increased radar separation for small type aircraft landing behind large, heavy, or B757 aircraft because of the possible effects of wake turbulence.

b. The separation minima shall continue to touchdown for all IFR aircraft not making a visual approach or maintaining visual separation.

REFERENCE-
FAAO 7110.65, Approach Separation Responsibility, Para 5-9-5.

2-1-20. WAKE TURBULENCE CAUTIONARY ADVISORIES

a. Issue wake turbulence cautionary advisories and the position, altitude if known, and direction of flight of the heavy jet or B757 to:

REFERENCE-
AC 90-23, Aircraft Wake Turbulence, Pilot Responsibility, Para 12.

1. *TERMINAL.* VFR aircraft not being radar vectored but are behind heavy jets or B757's.

2. IFR aircraft that accept a visual approach or visual separation.

REFERENCE-
FAAO 7110.65, Visual Approach, Para 7-4-1.

3. *TERMINAL.* VFR arriving aircraft that have previously been radar vectored and the vectoring has been discontinued.

b. Issue cautionary information to any aircraft if in your opinion, wake turbulence may have an adverse effect on it. When traffic is known to be a heavy aircraft, include the word *heavy* in the description.

NOTE-
Wake turbulence may be encountered by aircraft in flight as well as when operating on the airport movement area. Because wake turbulence is unpredictable, the controller is not responsible for anticipating its existence or effect. Although not mandatory during ground operations, controllers may use the words jet blast, propwash, or rotorwash, in lieu of wake turbulence, when issuing a caution advisory.

REFERENCE-
AC 90-23, Aircraft Wake Turbulence.
P/CG TERM- Aircraft Classes.
P/CG TERM- Wake Turbulence.

PHRASEOLOGY-
CAUTION WAKE TURBULENCE (traffic information).

REFERENCE-
FAAO 7110.65, Visual Separation, Para 7-2-1.

2-1-21. TRAFFIC ADVISORIES

Unless an aircraft is operating within Class A airspace or omission is requested by the pilot, issue traffic advisories to all aircraft (IFR or VFR) on your frequency when, in your judgment, their proximity may diminish to less than the applicable separation minima. Where no separation minima applies, such as for VFR aircraft outside of Class B/Class C airspace, or a TRSA, issue traffic advisories to those aircraft on your frequency when in your judgment their proximity warrants it. Provide this service as follows:

a. To radar identified aircraft:

1. Azimuth from aircraft in terms of the 12-hour clock, or

2. When rapidly maneuvering aircraft prevent accurate issuance of traffic as in 1 above, specify the direction from an aircraft's position in terms of the eight cardinal compass points (N, NE, E, SE, S, SW, W, and NW). This method shall be terminated at the pilot's request.

3. Distance from aircraft in miles.

4. Direction in which traffic is proceeding and/or relative movement of traffic.

NOTE-
Relative movement includes closing, converging, parallel same direction, opposite direction, diverging, overtaking, crossing left to right, crossing right to left.

5. If known, type of aircraft and altitude.

REFERENCE-
FAAO 7110.65, Description of Aircraft Types, Para 2-4-21.

PHRASEOLOGY-
TRAFFIC, (number) O'CLOCK,

or when appropriate,

(direction) (number) MILES, (direction)-BOUND and/or (relative movement),

and if known,

(type of aircraft and altitude).

or

When appropriate,

(type of aircraft and relative position), (number of feet) FEET ABOVE/BELOW YOU.

If altitude is unknown,

ALTITUDE UNKNOWN.

EXAMPLE-
"Traffic, eleven o'clock, one zero miles, southbound, converging, Boeing Seven Twenty Seven, one seven thousand."
"Traffic, twelve o'clock, one five miles, opposite direction, altitude unknown."
"Traffic, ten o'clock, one two miles, southeast bound, one thousand feet below you."

6. When requested by the pilot, issue radar vectors to assist in avoiding the traffic, provided the aircraft to be vectored is within your area of jurisdiction or coordination has been effected with the sector/facility in whose area the aircraft is operating.

7. If unable to provide vector service, inform the pilot.

REFERENCE-
FAAO 7110.65, Operational Requests, Para 2-1-18.

8. Inform the pilot of the following when traffic you have issued is not reported in sight:

(a) The traffic is no factor.

(b) The traffic is no longer depicted on radar.

PHRASEOLOGY-
TRAFFIC NO FACTOR/NO LONGER OBSERVED,

or

(number) O'CLOCK TRAFFIC NO FACTOR/NO LONGER OBSERVED,

or

(direction) TRAFFIC NO FACTOR/NO LONGER OBSERVED.

b. To aircraft that are not radar identified:

1. Distance and direction from fix.

2. Direction in which traffic is proceeding.

3. If known, type of aircraft and altitude.

4. ETA over the fix the aircraft is approaching, if appropriate.

PHRASEOLOGY-
TRAFFIC, (number) MILES/MINUTES (direction) OF (airport or fix), (direction)-BOUND,

and if known,

(type of aircraft and altitude),

ESTIMATED (fix) (time),

or

TRAFFIC, NUMEROUS AIRCRAFT VICINITY (location).

If altitude is unknown,

ALTITUDE UNKNOWN.

EXAMPLE-
"Traffic, one zero miles east of Forsythe V-O-R, Southbound, M-D Eighty, descending to one six thousand."
"Traffic, reported one zero miles west of Downey V-O-R, northbound, Apache, altitude unknown, estimated Joliet V-O-R one three one five."
"Traffic, eight minutes west of Chicago Heights V-O-R, westbound, Mooney, eight thousand, estimated Joliet V-O-R two zero three five."
"Traffic, numerous aircraft, vicinity of Delia airport."

c. For aircraft displaying Mode C, not radar identified, issue indicated altitude.

EXAMPLE-
"Traffic, one o'clock, six miles, eastbound, altitude indicates six thousand five hundred."

REFERENCE-
FAAO 7110.65, Traffic Information, Para 3-1-6.
FAAO 7110.65, Visual Separation, Para 7-2-1.
FAAO 7110.65, VFR Departure Information, Para 7-6-10.

2-1-22. BIRD ACTIVITY INFORMATION

a. Issue advisory information on pilot-reported, tower-observed, or radar-observed and pilot-verified bird activity. Include position, species or size of birds, if known, course of flight, and altitude. Do this for at least 15 minutes after receipt of such information from pilots or from adjacent facilities unless visual observation or subsequent reports reveal the activity is no longer a factor.

EXAMPLE-
"Flock of geese, one o'clock, seven miles, northbound, last reported at four thousand."
"Flock of small birds, southbound along Mohawk River, last reported at three thousand."
"Numerous flocks of ducks, vicinity Lake Winnebago, altitude unknown."

b. Relay bird activity information to adjacent facilities and to FSS's whenever it appears it will become a factor in their areas.

2-1-23. TRANSFER OF POSITION RESPONSIBILITY

The transfer of position responsibility shall be accomplished in accordance with the "Standard Operating Practice (SOP) for the Transfer of Position Responsibility," and appropriate facility directives each time operational responsibility for a position is transferred from one specialist to another.

2-1-24. WHEELS DOWN CHECK

USA/USAF/USN

Remind aircraft to check wheels down on each approach unless the pilot has previously reported wheels down for that approach.

NOTE-
The intent is solely to remind the pilot to lower the wheels, not to place responsibility on the controller.

a. Tower shall issue the wheels down check at an appropriate place in the pattern.

PHRASEOLOGY-
CHECK WHEELS DOWN.

b. Approach/arrival control, GCA shall issue the wheels down check as follows:

1. To aircraft conducting ASR, PAR, or radar monitored approaches, before the aircraft starts descent on final approach.

2. To aircraft conducting instrument approaches and remaining on the radar facility's frequency, before the aircraft passes the outer marker/final approach fix.

PHRASEOLOGY-
WHEELS SHOULD BE DOWN.

2-1-25. SUPERVISORY NOTIFICATION

Ensure supervisor/controller-in-charge (CIC) is aware of conditions which impact sector/position operations including, but not limited to, the following:

a. Weather.

b. Equipment status.

c. Potential sector overload.

d. Emergency situations.

e. Special flights/operations.

2-1-26. PILOT DEVIATION NOTIFICATION

When it appears that the actions of a pilot constitute a pilot deviation, notify the pilot, workload permitting.

PHRASEOLOGY-

(Identification) POSSIBLE PILOT DEVIATION ADVISE YOU CONTACT (facility) AT (telephone number).

REFERENCE-

FAAO 8020.11, Aircraft Accident and Incident Notification, Investigation, and Reporting, Pilot Deviations, Para 82.

2-1-27. TCAS RESOLUTION ADVISORIES

a. When an aircraft under your control jurisdiction informs you that it is responding to a TCAS Resolution Advisory (RA), do not issue control instructions that are contrary to the RA procedure that a crew member has advised you that they are executing. Provide safety alerts regarding terrain or obstructions and traffic advisories for the aircraft responding to the RA and all other aircraft under your control jurisdiction, as appropriate.

b. Unless advised by other aircraft that they are also responding to a TCAS RA, do not assume that other aircraft in the proximity of the responding aircraft are involved in the RA maneuver or are aware of the responding aircraft's intended maneuvers. Continue to provide control instructions, safety alerts, and traffic advisories as appropriate to such aircraft.

c. Once the responding aircraft has begun a maneuver in response to an RA, the controller is not responsible for providing standard separation between the aircraft that is responding to an RA and any other aircraft, airspace, terrain or obstructions. Responsibility for standard separation resumes when one of the following conditions are met:

1. The responding aircraft has returned to its assigned altitude, or

2. A crew member informs you that the TCAS maneuver is completed and you observe that standard separation has been reestablished, or

3. The responding aircraft has executed an alternate clearance and you observe that standard separation has been reestablished.

NOTE-

1. *AC 120-55A, Air Carrier Operational Approval and Use of TCAS II, suggests pilots use the following phraseology to notify controllers during TCAS events. When a TCAS RA may affect an ATC clearance, inform ATC when beginning the maneuver, or as soon as workload permits.*

EXAMPLE-

1. *"New York Center, United 321, TCAS climb."*

NOTE-

2. *When the RA has been resolved, the flight crew should advise ATC they are returning to their previously assigned clearance or subsequent amended clearance.*

EXAMPLE-

2. *"New York Center, United 321, clear of conflict, returning to assigned altitude."*

Section 2. Flight Plans and Control Information

2-2-1. RECORDING INFORMATION

a. Record flight plan information required by the type of flight plan and existing circumstances. Use authorized abbreviations when possible.

NOTE-
Generally, all military overseas flights are required to clear through a specified military base operations office (BASOPS). Pilots normally will not file flight plans directly with an FAA facility unless a BASOPS is not available. BASOPS will, in turn, forward the IFR flight notification message to the appropriate center.

b. *EN ROUTE.* When flight plans are filed directly with the center, record all items given by the pilot either on a flight progress strip/flight data entry or on a voice recorder. If the latter, enter in box 26 of the initial flight progress strip the sector or position number to identify where the information may be found in the event search and rescue (SAR) activities become necessary.

REFERENCE-
FAAO 7110.65, En Route Data Entries, Para 2-3-2.

2-2-2. FORWARDING INFORMATION

a. Except during NAS Stage A operation, forward the flight plan information to the appropriate ATC facility, FSS, or BASOPS and record the time of filing and delivery on the form.

b. *EN ROUTE.* During NAS Stage A operation, the above manual actions are required in cases where the data is not forwarded automatically by the computer.

NOTE-
During NAS Stage A operation, data is exchanged between interfaced automated facilities and both the data and time of transmission are recorded automatically.

c. *EN ROUTE.* Forward proposed tower en route flight plans and any related amendments to the appropriate departure terminal facility.

2-2-3. FORWARDING VFR DATA

TERMINAL

Forward aircraft departure times to FSS's or military operations offices when they have requested them. Forward other VFR flight plan data only if requested by the pilot.

2-2-4. MILITARY DVFR DEPARTURES

TERMINAL

Forward departure times on all military DVFR departures from joint-use airports to the military operations office.

NOTE-
1. Details for handling air carrier, nonscheduled civil, and military DVFR flight data are contained in FAAO 7610.4, Special Military Operations.

2. Military pilots departing DVFR from a joint-use airport will include the phrase "DVFR to (destination)" in their initial call-up to an FAA operated tower.

2-2-5. IFR TO VFR FLIGHT PLAN CHANGE

Request a pilot to contact the appropriate FSS if the pilot informs you of a desire to change from an IFR to a VFR flight plan.

2-2-6. IFR FLIGHT PROGRESS DATA

Forward control information from controller to controller within a facility, then to the receiving facility as the aircraft progresses along its route. Where appropriate, use computer equipment in lieu of manual coordination procedures. Do not use the remarks section of flight progress strips in lieu of voice coordination to pass control information. Ensure that flight plan and control information is correct and up-to-date. When covered by a letter of agreement/facility directive, the time requirements of subpara a may be reduced, and the time requirements of subpara b1 and para 2-2-11, Forwarding Amended and UTM Data, subpara a may be increased up to 15 minutes when facilitated by automated systems or mandatory radar handoffs; or if operationally necessary because of manual data processing or nonradar operations, the time requirements of subpara a may be increased.

NOTE-
1. The procedures for preparing flight plan and control information related to altitude reservations (ALTRV's) are contained in FAAO 7210.3, ALTRV Flight Data Processing, para 8-1-2. Development of the methods for assuring the accuracy and completeness of ALTRV flight plan and control information is the responsibility of the military liaison and security officer.

2. The term facility in this paragraph refers to centers and terminal facilities when operating in an en route capacity.

a. Forward the following information at least 15 minutes before the aircraft is estimated to enter the receiving facility's area:

1. Aircraft identification.

2. TCAS or heavy aircraft indicator if appropriate, type of aircraft, and appropriate aircraft equipment suffix. The TCAS indicator is "T/" and the heavy aircraft indicator is "H/". For aircraft that are both TCAS and heavy, the indicator is "B/". For B757, the indicator is "F/" and for B757 with TCAS, the indicator is "L/".

3. Assigned altitude and ETA over last reporting point/fix in transferring facility's area or assumed departure time when the departure point is the last point/fix in the transferring facility's area.

4. Altitude at which aircraft will enter the receiving facility's area if other than the assigned altitude.

5. True airspeed.

6. Point of departure.

7. Route of flight remaining.

8. Destination airport and clearance limit if other than destination airport.

9. ETA at destination airport (not required for military or scheduled air carrier aircraft).

10. Altitude requested by the aircraft if assigned altitude differs from requested altitude (within a facility only).

NOTE-
When an aircraft has crossed one facility's area and assignment at a different altitude is still desired, the pilot will reinitiate the request with the next facility.

REFERENCE-
FAAO 7110.65, Anticipated Altitude Changes, Para 4-5-8.

11. When flight plan data must be forwarded manually and an aircraft has been assigned a beacon code by the computer, include the code as part of the flight plan.

NOTE-
When an IFR aircraft, or a VFR aircraft that has been assigned a beacon code by the host computer and whose flight plan will terminate in another facility's area cancels ATC service or does not activate the flight plan, send a remove strips (RS) message on that aircraft via the host keyboard, the FDIO keyboard or call via service F.

12. Longitudinal separation being used between aircraft at the same altitude if it results in these aircraft having less than 10 minutes separation at the facilities' boundary.

13. Any additional nonroutine operational information pertinent to flight safety.

NOTE-
EN ROUTE. This includes alerting the receiving controller that the flight is conducting celestial navigation training.

REFERENCE-
FAAO 7110.65, Celestial Navigation Training, Para 9-3-2.

b. Forward position report over last reporting point in the transferring facility's area if any of the following conditions exist:

1. Time differs more than 3 minutes from estimate given.

2. Requested by receiving facility.

3. Agreed to between facilities.

2-2-7. MANUAL INPUT OF COMPUTER-ASSIGNED BEACON CODES

When a flight plan is manually entered into the computer and a computer-assigned beacon code has been forwarded with the flight plan data, insert the beacon code in the appropriate field as part of the input message.

2-2-8. ALTRV INFORMATION

EN ROUTE

When an aircraft is a part of an approved ALTRV, forward only those items necessary to properly identify the flight, update flight data contained in the ALTRV APVL, or revise previously given information.

2-2-9. COMPUTER MESSAGE VERIFICATION

EN ROUTE

Unless your facility is equipped to automatically obtain acknowledgment of receipt of transferred data, when you transfer control information by computer message, obtain, via Service F, acknowledgment that the receiving center has received the message and verification of the following:

a. Within the time limits specified by a letter of agreement or when not covered by a letter of agreement, at least 15 minutes before the aircraft is estimated to enter the receiving facility's area, or at the time of a radar handoff, or coordination for transfer of control:

1. Aircraft identification.

2. Assigned altitude.

3. Departure or coordination fix time.

b. Any cancellation of IFR or HOST generated VFR flight plan.

REFERENCE-
FAAO 7110.65, IFR Flight Progress Data, Para 2-2-6.

2-2-10. TRANSMIT PROPOSED FLIGHT PLAN

EN ROUTE

a. Transmit proposed flight plans which fall within an ARTCC's Proposed Boundary Crossing Time (PBCT) parameter to adjacent ARTCC's via the Computer B network during hours of inter-center computer operation. In addition, when the route of flight of any proposed flight plan exceeds 20 elements external to the originating ARTCC's area, NADIN shall be used to forward the data to all affected centers.

b. During nonautomated operation, the proposed flight plans shall be sent via NADIN to the other centers involved when any of the following conditions are met:

1. The route of flight external to the originating center's area consists of 10 or more elements and the flight will enter 3 or more other center areas.

NOTE-
An element is defined as either a fix or route as specified in FAAO 7110.10, IFR Flight Plan Control Messages, Para 6-3-3.

2. The route of flight beyond the first point of exit from the originating center's area consists of 10 or more elements, which are primarily fixes described in fix-radial-distance or latitude/longitude format, regardless of the number of other center areas entered.

3. The flight plan remarks are too lengthy for interphone transmission.

2-2-11. FORWARDING AMENDED AND UTM DATA

a. Forward any amending data concerning previously forwarded flight plans except that revisions to ETA information in para 2-2-6, IFR Flight Progress Data, need only be forwarded when the time differs by more than 3 minutes from the estimate given.

PHRASEOLOGY-
(Identification), REVISED (revised information).

EXAMPLE-
"American Two, revised flight level, three three zero."

"United Eight Ten, revised estimate, Front Royal two zero zero five."

"Douglas Five Zero One Romeo, revised altitude, eight thousand."

"U.S. Air Eleven Fifty-one, revised type, heavy Boeing Seven Sixty-seven."

REFERENCE-
FAAO 7110.65, IFR Flight Progress Data, Para 2-2-6.

b. Computer acceptance of an appropriate input message fulfills the requirement for sending amended data. During NAS Stage A operations, the amendment data are considered acknowledged on receipt of a Computer Readout Device (CRD) update message or a computer-generated flight progress strip containing the amended data.

NOTE-
1. The successful utilization of automation equipment requires timely and accurate insertion of changes and/or new data.

2. If a pilot is not issued a computer-generated PDR/PDAR/PAR and if amendment data is not entered into the computer, the next controller will have incorrect route information.

c. Forward any amended control information and record the action on the appropriate flight progress strip. Additionally, when a route or altitude in a previously issued clearance is amended within 15 minutes of an aircraft's proposed departure time, the facility that amended the clearance shall coordinate the amendment with the receiving facility via verbal AND automated means to ensure timely passage of the information.

NOTE-
The term "receiving" facility means the ATC facility that is expected to transmit the amended clearance to the intended aircraft/pilot.

d. *EN ROUTE.* Effect manual coordination on any interfacility flight plan data that is not passed through automated means.

2-2-12. AIRBORNE MILITARY FLIGHTS

Forward to FSS's the following information received from airborne military aircraft:

a. IFR flight plans and changes from VFR to IFR flight plans.

b. Changes to an IFR flight plan as follows:

1. Change in destination:

(a) Aircraft identification and type.

(b) Departure point.

(c) Original destination.

(d) Position and time.

(e) New destination.

(f) ETA.

(g) Remarks including change in fuel exhaustion time.

(h) Revised ETA.

2. Change in fuel exhaustion time.

NOTE-
This makes current information available to FSS's for relay to military bases concerned and for use by centers in the event of two-way radio communications failure.

2-2-13. FORWARDING FLIGHT PLAN DATA BETWEEN U.S. ARTCC'S AND CANADIAN ACC'S

EN ROUTE

a. *Domestic.* (Continental U.S./Canadian airspace except Alaska) Proposed departure flight plans and en route estimates will be handled on a 30 minute lead time (or as bilaterally agreed) between any ACC and ARTCC.

b. *International.* Any route changes (except DP's) must be forwarded to the appropriate Oceanic/Pre-oceanic ACC or ARTCC with an optimum lead time of 30 minutes or as soon as this information becomes available.

c. Initially, if a flight goes from U.S. airspace into Canadian airspace and returns to U.S. airspace, the ACC will be responsible for forwarding the flight plan data to the appropriate ARTCC by voice transmission except for flights which traverse mutually agreed on airways/fixes. These airways/fixes will be determined on a case-by-case basis and will be based on time and distance considerations at the regional level.

2-2-14. TELETYPE FLIGHT DATA FORMAT- U.S. ARTCC'S - CANADIAN ACC'S

EN ROUTE

The exchange of flight plan data between Canadian ACC's and U.S. ARTCC's shall be made as follows:

a. The U.S. ARTCC's will transmit flight data to the Canadian ACC's in one of the following formats:

1. NADIN II input format as described in the NAS Management Directives (MD's) for:

(a) Flight Plan Messages:

(1) Active.

(2) Proposed.

(b) Amendment messages.

(c) Cancellation messages.

(d) Response Messages to Canadian Input:

(1) Acknowledgment messages.

(2) Error messages.

(3) Rejection messages.

2. Transport Canada (TC) ACC Flight Strip Format: Where the data to be printed on the ACC strip form exceeds the strip form field size, the NADIN II input format in 1 above will be used. Input sequentially fields 1 through 8 in para 2-2-6, IFR Flight Progress Data, subpara a.

b. TC's ACC's will transmit flight data to the FAA ARTCC's in the following format:

1. NADIN II input format as described in NAS MD's for:

(a) Flight Plan Messages:

(1) Active.

(2) Proposed.

(b) Amendment messages.

(c) Cancellation messages.

(d) Correction messages.

2-2-15. NATIONAL ROUTE PROGRAM (NRP) INFORMATION

a. "NRP" shall be retained in the remarks section of the flight plan if the aircraft is moved due to weather, traffic, or other tactical reasons.

NOTE-
Every effort should be made to ensure the aircraft is returned to the original filed flight plan/altitude as soon as conditions warrant.

b. If the route of flight is altered due to a pilot request, "NRP" shall be removed from the remarks section of the flight plan.

c. "NRP" shall not be entered in the remarks section of a flight plan, unless prior coordination is accomplished with the ATCSCC or as prescribed by international NRP flight operations procedures.

d. The en route facility within which an international flight entering the conterminous U.S. requests to participate in the NRP shall enter "NRP" in the remarks section of the flight plan.

REFERENCE-
FAAO 7110.65, Operational Priority, Para 2-1-4.
FAAO 7110.65, En Route Data Entries, Para 2-3-2.
FAAO 7110.65, Route or Altitude Amendments, Para 4-2-5.
FAAO 7210.3, Chapter 17, Section 17, National Route Program.

Section 3. Flight Progress Strips

2-3-1. GENERAL

Unless otherwise authorized in a facility directive, use flight progress strips to post current data on air traffic and clearances required for control and other air traffic control services. To prevent misinterpretation when data is hand printed, use standard hand-printed characters.

En route: Flight progress strips shall be posted.

REFERENCE-
FAAO 7210.3, Flight Progress Strip Usage, Para 6-1-6.

a. Maintain only necessary current data and remove the strips from the flight progress boards when no longer required for control purposes. To correct, update, or preplan information:

1. Do not erase or overwrite any item. Use an "X" to delete a climb/descend and maintain arrow, an at or above/below symbol, a cruise symbol, and unwanted altitude information. Write the new altitude information immediately adjacent to it and within the same space.

2. Do not draw a horizontal line through an altitude being vacated until after the aircraft has reported or is observed (valid Mode C) leaving the altitude.

3. Preplanning may be accomplished in red pencil.

b. Manually prepared strips shall conform to the format of machine-generated strips and manual strip preparation procedures will be modified simultaneously with the operational implementation of changes in the machine-generated format. (See FIG 2-3-1.)

c. Altitude information may be written in thousands of feet provided the procedure is authorized by the facility manager, and is defined in a facility directive, i.e. 5,000 feet as 5, and 2,800 as 2.8.

NOTE-
A slant line crossing through the number zero and underline of the letter "s" on handwritten portions of flight progress strips are required only when there is reason to believe the lack of these markings could lead to misunderstanding. A slant line crossing through the number zero is required on all weather data.

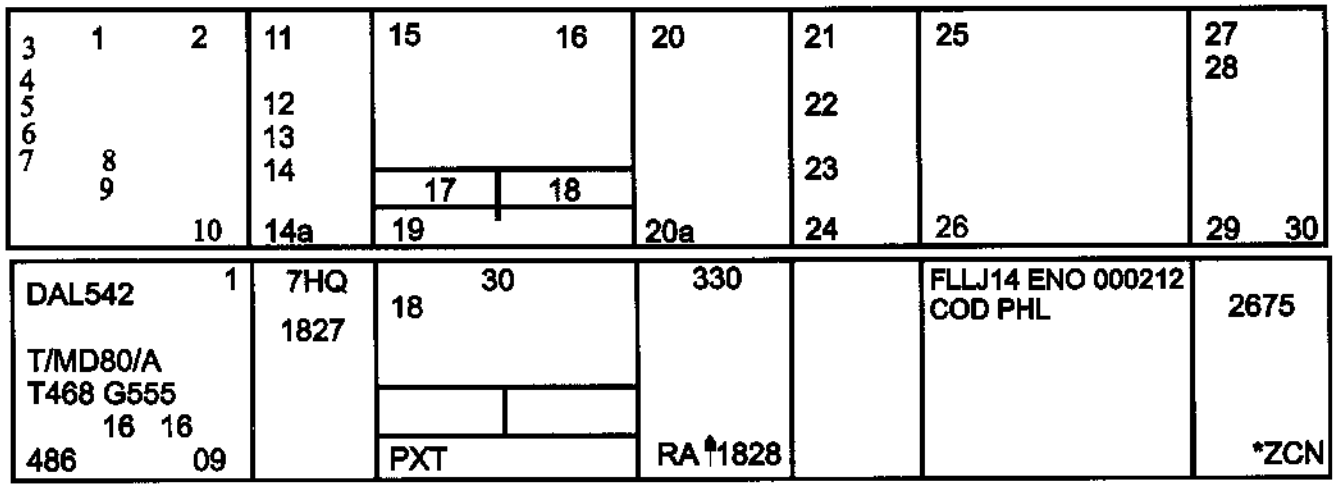
Standard Recording of Hand-printed Characters

Typed	Hand Printed	Typed	Hand Printed
A	A	T	T
B	B	U	U
C	C	V	V
D	D	W	W
E	E	X	X
F	F	Y	Y
G	G	Z	Z
H	H		
I	I	1	1
J	J	2	2
K	K	3	3
L	L	4	4
M	M	5	5
N	N	6	6
O	O	7	7
P	P	8	8
Q	Q	9	9
R	R	0	Ø
S	S		

FIG 2-3-1

2-3-2. EN ROUTE DATA ENTRIES

Flight Progress Strip
(7230-19)



a. Information recorded on the flight progress strips (FAA Forms 7230-19) shall be entered in the correspondingly numbered spaces:

Block	*Information Recorded*
1.	Verification symbol if required.
2.	Revision number. DSR-Not used.
3.	Aircraft identification.
4.	Number of aircraft if more than one, TCAS/ heavy aircraft indicator if appropriate, type of aircraft, and aircraft equipment suffix. The TCAS indicator is "T/" and the heavy aircraft indicator is "H/". For aircraft that are both TCAS and heavy, the indicator is "B/". For B757, the indicator is "F/" and for B757 with TCAS, the indicator is "L/".
5.	Filed true airspeed.
6.	Sector number.
7.	Computer identification number if required.
8.	Estimated ground speed.
9.	Revised ground speed or strip request (SR) originator.
10.	Strip number. DSR- Strip number/Revision number.
11.	Previous fix.
12.	Estimated time over previous fix.
13.	Revised estimated time over previous fix.
14.	Actual time over previous fix, or actual departure time entered on first fix posting after departure.
14a.	Plus time expressed in minutes from the previous fix to the posted fix.

Block	*Information Recorded*
15.	Center-estimated time over fix (in hours and minutes), or clearance information for departing aircraft.
16.	Arrows to indicate if aircraft is departing (↑) or arriving (↓).
17.	Pilot-estimated time over fix.
18.	Actual time over fix, time leaving holding fix, arrival time at nonapproach control airport, or symbol indicating cancellation of IFR flight plan for arriving aircraft, or departure time (actual or assumed).
19.	Fix. For departing aircraft, add proposed departure time.
20.	Altitude information (in hundreds of feet) or as noted below.
NOTE-	*Altitude information may be written in thousands of feet provided the procedure is authorized by the facility manager, and is defined in a facility directive, i.e. FL 330 as 33, 5,000 feet as 5, and 2,800 as 2.8.*
20a.	**OPTIONAL USE,** when voice recorders are operational; **REQUIRED USE,** when the voice recorders are not operating and strips are being use at the facility. This space is used to record reported RA events. The letters RA followed by a climb or descent arrow (if the climb or descent action is reported) and the time (hhmm) the event is reported.

Block	*Information Recorded*
21.	Next posted fix or coordination fix.
22.	Pilot's estimated time over next fix.
23.	Arrows to indicate north (↑), south (↓), east (→), or west (←) direction of flight if required.
24.	Requested altitude.
NOTE-	*Altitude information may be written in thousands of feet provided the procedure is authorized by the facility manager, and is defined in a facility directive, i.e., FL 330 as 33, 5,000 feet as 5, and 2,800 as 2.8.*
25.	Point of origin, route as required for control and data relay, and destination.
26.	Pertinent remarks, minimum fuel, point out/radar vector/speed adjustment information or sector/position number (when applicable in accordance with para 2-2-1, Recording Information), or NRP.
27.	Mode 3/A beacon code if applicable.
28.	Miscellaneous control data (expected further clearance time, time cleared for approach, etc.).
29-30.	Transfer of control data and coordination indicators.

FIG 2-3-2

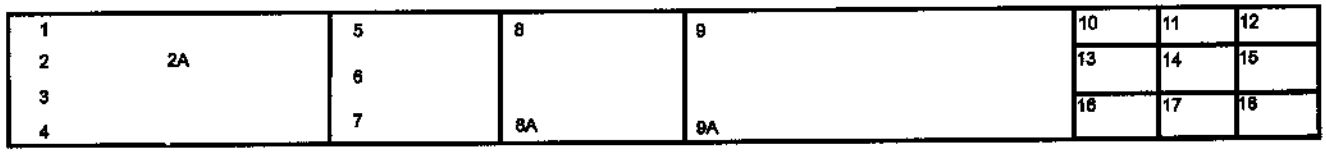
b. Latitude/longitude coordinates may be used to define waypoints and may be substituted for non-adapted NAVAID's in space 25 of domestic en route flight progress strips provided it is necessary to accommodate a random RNAV or GNSS route request.

c. Facility Air Traffic managers may authorize the optional use of spaces 13, 14, 14a, 22, 23, 24, and 28 for point out information, radar vector information, speed adjustment information, or transfer of control data.

2-3-3. TERMINAL DATA ENTRIES

a. Arrivals:

Information recorded on the flight progress strips (FAA Forms 7230-7.1, 7230-7.2, and 7230-8) shall be entered in the correspondingly numbered spaces. Facility managers can authorize omissions and/or optional use of spaces 2A, 9A, and 10-18, if no misunderstanding will result. These omissions and/or optional uses shall be specified in a facility directive.



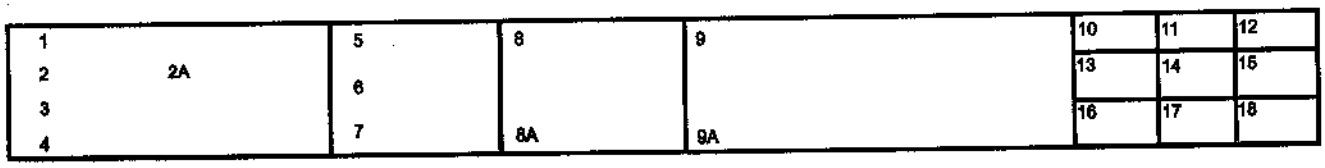
Block	*Information Recorded*
1.	Aircraft identification.
2.	Revision number (FDIO locations only).
2A.	Strip request originator. (At FDIO locations this indicates the sector or position that requested a strip be printed.)
3.	Number of aircraft if more than one, TCAS/ heavy aircraft indicator if appropriate, type of aircraft, and aircraft equipment suffix. The TCAS indicator is "T/" and the heavy aircraft indicator is "H/". For aircraft that are both TCAS and heavy, the indicator is "B/". For B757, the indicator is "F/" and for B757 with TCAS, the indicator is "L/".
4.	Computer identification number if required.
5.	Secondary radar (beacon) code assigned.
6.	(FDIO Locations.) The previous fix will be printed. (Non-FDIO Locations.) Use of the inbound airway. This function is restricted to facilities where flight data is received via interphone when agreed upon by the center and terminal facilities.
7.	Coordination fix.
8.	Estimated time of arrival at the coordination fix or destination airport.

Block	*Information Recorded*
8A.	**OPTIONAL USE,** when voice recorders are operational; **REQUIRED USE,** when the voice recorders are not operating and strips are being used at the facility. This space is used to record reported RA events when the voice recorders are not operational and strips are being used at the facility. The letters RA followed by a climb or descent arrow (if the climb or descent action is reported) and the time (hhmm) the event is reported.
9.	Altitude (in hundreds of feet) and remarks.
NOTE-	*Altitude information may be written in thousands of feet provided the procedure is authorized by the facility manager, and is defined in a facility directive, i. e., FL 230 as 23, 5,000 feet as 5, and 2,800 as 2.8.*
9A.	Minimum fuel, destination airport/point out/radar vector/speed adjustment information. Air Traffic managers may authorize in a facility directive the omission of any of these items, **except minimum fuel,** if no misunderstanding will result.
NOTE-	*Authorized omissions and optional use of spaces shall be specified in the facility directive concerning strip marking procedures.*
10-18.	Enter data as specified by a facility directive. Radar facility personnel need not enter data in these spaces except when nonradar procedures are used or when radio recording equipment is inoperative.

FIG 2-3-3

b. Departures:

Information recorded on the flight progress strips (FAA Forms 7230-7.1, 7230-7.2, and 7230-8) shall be entered in the correspondingly numbered spaces. Facility managers can authorize omissions and/or optional use of spaces 2A, 9A, and 10-18, if no misunderstanding will result. These omissions and/or optional uses shall be specified in a facility directive.



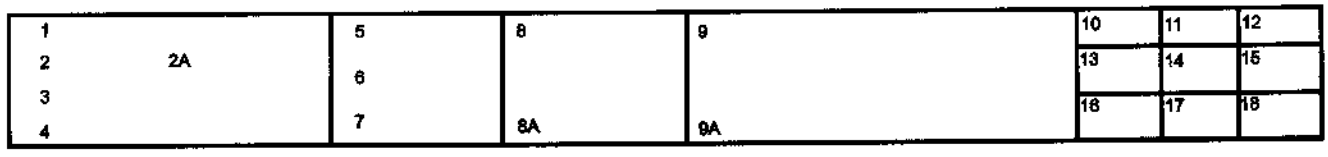
Block	*Information Recorded*
1.	Aircraft identification.
2.	Revision number (FDIO locations only).
2A.	Strip request originator. (At FDIO locations this indicates the sector or position that requested a strip be printed.)
3.	Number of aircraft if more than one, TCAS/ heavy aircraft indicator if appropriate, type of aircraft, and aircraft equipment suffix. The TCAS indicator is "T/" and the heavy aircraft indicator is "H/". For aircraft that are both TCAS and heavy, the indicator is "B/". For B757, the indicator is "F/" and for B757 with TCAS, the indicator is "L/".
4.	Computer identification number if required.
5.	Secondary radar (beacon) code assigned.
6.	Proposed departure time.
7.	Requested altitude.
NOTE-	*Altitude information may be written in thousands of feet provided the procedure is authorized by the facility manager, and is defined in a facility directive, i. e., FL 230 as 23, 5,000 feet as 5, and 2,800 as 2.8.*
8.	Departure airport.

Block	*Information Recorded*
8A.	**OPTIONAL USE,** when voice recorders are operational; **REQUIRED USE,** when the voice recorders are not operating and strips are being used at the facility. This space is used to record reported RA events when the voice recorders are not operational and strips are being used at the facility. The letters RA followed by a climb or descent arrow (if the climb or descent action is reported) and the time (hhmm) the event is reported.
9.	**Computer-generated:** Route, destination, and remarks. Manually enter altitude/altitude restrictions in the order flown, if appropriate, and remarks.
9.	**Hand-prepared:** Clearance limit, route, altitude/altitude restrictions in the order flown, if appropriate, and remarks.
NOTE-	*Altitude information may be written in thousands of feet provided the procedure is authorized by the facility manager, and is defined in a facility directive, i. e., FL 230 as 23, 5,000 feet as 5, and 2,800 as 2.8.*
9A.	Point out/radar vector/speed adjustment information.
10-18.	Enter data as specified by a facility directive. Items, such as departure time, runway used for takeoff, check marks to indicate information forwarded or relayed, may be entered in these spaces.

FIG 2-3-4

c. Overflights:

Information recorded on the flight progress strips (FAA Forms 7230-7.1, 7230-7.2, and 7230-8) shall be entered in the correspondingly numbered spaces. Facility managers can authorize omissions and/or optional use of spaces 2A, 9A, and 10-18, if no misunderstanding will result. These omissions and/or optional uses shall be specified in a facility directive.



Block	*Information Recorded*
1.	Aircraft identification.
2.	Revision number (FDIO locations only).
2A.	Strip request originator. (At FDIO locations this indicates the sector or position that requested a strip be printed.)
3.	Number of aircraft if more than one, TCAS/ heavy aircraft indicator if appropriate, type of aircraft, and aircraft equipment suffix. The TCAS indicator is "T/" and the heavy aircraft indicator is "H/". For aircraft that are both TCAS and heavy, the indicator is "B/". For B757, the indicator is "F/" and for B757 with TCAS, the indicator is "L/".
4.	Computer identification number if required.
5.	Secondary radar (beacon) code assigned.
6.	Coordination fix.
7.	Overflight coordination indicator (FDIO locations only).
NOTE-	*The overflight coordination indicator identifies the facility to which flight data has been forwarded.*
8.	Estimated time of arrival at the coordination fix.

Block	*Information Recorded*
8A.	**OPTIONAL USE,** when voice recorders are operational; **REQUIRED USE,** when the voice recorders are not operating and strips are being used at the facility. This space is used to record reported RA events when the voice recorders are not operational and strips are being used at the facility. The letters RA followed by a climb or descent arrow (if the climb or descent action is reported) and the time (hhmm) the event is reported.
9.	Altitude and route of flight through the terminal area.
NOTE-	*Altitude information may be written in thousands of feet provided the procedure is authorized by the facility manager, and is defined in a facility directive, i. e., FL 230 as 23, 5,000 feet as 5, and 2,800 as 2.8.*
9A.	Point out/radar vector/speed adjustment information.
10-18.	Enter data as specified by a facility directive.

FIG 2-3-5

NOTE-
National standardization of items (10 through 18) is not practical because of regional and local variations in operating methods; e.g., single fix, multiple fix, radar, tower en route control, etc.

d. Air traffic managers at automated terminal radar facilities may waive the requirement to use flight progress strips provided:

1. Backup systems such as multiple radar sites/systems or single site radars with CENRAP are utilized.

2. Local procedures are documented in a facility directive. These procedures should include but not be limited to:

(a) Departure areas and/or procedures.

(b) Arrival procedures.

(c) Overflight handling procedures.

(d) Transition from radar to nonradar.

(e) Transition from ARTS to non-ARTS.

(f) Transition from ASR to CENRAP.

(g) Transition to or from ESL.

3. No misunderstanding will occur as a result of no strip usage.

4. Unused flight progress strips, facility developed forms and/or blank notepads shall be provided for controller use.

5. Facilities shall revert to flight progress strip usage if backup systems referred to in subpara a are not available.

e. Air traffic managers at FDIO locations may authorize reduced lateral spacing between fields so as to print all FDIO data to the left of the strip perforation. When using FAA Form 7230-7.2, all items will retain the same relationship to each other as they do when the full length strip (FAA Form 7230-7.1) is used.

2-3-4. AIRCRAFT IDENTITY

Indicate aircraft identity by one of the following using combinations not to exceed seven alphanumeric characters:

a. Civil aircraft, including air-carrier aircraft letter-digit registration number including the letter "T" prefix for air taxi aircraft, the letter "L" for lifeguard aircraft, 3-letter aircraft company designator specified in FAAO 7340.1, Contractions, followed by the trip or flight number. Use the operating air carrier's company name in identifying equipment interchange flights.

EXAMPLE-
"N12345."
"TN5552Q."
"AAI192."
"LN751B."

NOTE-
The letter "L" is not to be used for air carrier/air taxi lifeguard aircraft.

b. Military Aircraft.

1. Prefixes indicating branch of service and/or type of mission followed by the last 5 digits of the serial number (the last 4 digits for CAF/CAM/CTG). (See TBL 2-3-1 and TBL 2-3-2.)

2. Pronounceable words of 3, 4, 5, and 6 letters followed by a 4-, 3-, 2-, or 1-digit number.

EXAMPLE-
"SAMP Three One Six."

3. Assigned double-letter 2-digit flight number.

4. Navy or Marine fleet and training command aircraft, one of the following:

(a) The service prefix and 2 letters (use phonetic alphabet equivalent) followed by 2 or 3 digits.

Branch of Service Prefix

Prefix	*Branch*
A	U.S. Air Force
C	U.S. Coast Guard
G	Air or Army National Guard
R	U.S. Army
VM	U.S. Marine Corps
VV	U.S. Navy
CAF	Canadian Armed Force
CAM	Canadian Armed Force (Transport Command)
CTG	Canadian Coast Guard

TBL 2-3-1

Military Mission Prefix

Prefix	*Mission*
E	Medical Air Evacuation
F	Flight Check
L	LOGAIR (USAF Contract)
RCH	AMC (Air Mobility Command)
S	Special Air Mission

TBL 2-3-2

(b) The service prefix and a digit and a letter (use phonetic alphabet equivalent) followed by 2 or 3 digits.

c. Special-use. Approved special-use identifiers.

2-3-5. AIRCRAFT TYPE

Use the approved codes listed in Appendices A through C to indicate aircraft type.

2-3-6. USAF/USN UNDERGRADUATE PILOTS

To identify aircraft piloted by solo USAF/USN undergraduate student pilots (who may occasionally request revised clearances because they normally are restricted to flight in VFR conditions), the aircraft identification in the flight plan shall include the letter "Z" as a suffix. Do not use this suffix, however, in ground-to-air communication.

NOTE-
USAF solo students who have passed an instrument certification check may penetrate cloud layers in climb or descent only. Requests for revised clearances to avoid clouds in level flight can still be expected. This does not change the requirement to use the letter "Z" as a suffix to the aircraft identification.

REFERENCE-
FAAO 7110.65, Aircraft Identification, Para 2-4-20.
FAAO 7610.4, Chapter 12, Section 10, USAF Undergraduate Flying Training (UFT)/Pilot Instructor Training (PIT).

2-3-7. AIRCRAFT EQUIPMENT SUFFIX

a. Indicate, for both VFR and IFR operations, the aircraft's radar transponder, DME, or navigation capability by adding the appropriate symbol, preceded by a slant. (See TBL 2-3-3.)

b. When forwarding this information, state the aircraft type followed by the word "slant" and the appropriate phonetic letter equivalent of the suffix.

EXAMPLE-
"Cessna Three-ten slant Tango."
"A-Ten slant November."
"F-Sixteen slant Papa."
"Seven-sixty-seven slant Golf."

2-3-8. CLEARANCE STATUS

Use an appropriate clearance symbol followed by a dash (-) and other pertinent information to clearly show the clearance status of an aircraft. To indicate delay status use:

a. The symbol "H" at the clearance limit when holding instructions have been included in the aircraft's original clearance. Show detailed holding information following the dash when holding differs from the established pattern for the fix; i.e., turns, leg lengths, etc.

b. The symbols "F" or "O" to indicate the clearance limit when a delay is not anticipated.

2-3-9. CONTROL SYMBOLOGY

Use authorized control and clearance symbols or abbreviations for recording clearances, reports, and instructions. Control status of aircraft must always be current. You may use:

a. Plain language markings when it will aid in understanding information.

b. Locally approved identifiers. Use these only within your facility and not on teletypewriter or interphone circuits.

c. Plain sheets of paper or locally prepared forms to record information when flight progress strips are not used. (See TBL 2-3-4 and TBL 2-3-5.)

d. Control Information Symbols
(See FIG 2-3-6 and FIG 2-3-7.)

REFERENCE-
FAAO 7110.65, Exceptions, Para 4-5-3.

Aircraft Equipment Suffixes

SUFFIX	*AIRCRAFT EQUIPMENT SUFFIXES*
	NO DME
/X	No transponder
/T	Transponder with no Mode C
/U	Transponder with Mode C
	DME
/D	No transponder
/B	Transponder with no Mode C
/A	Transponder with Mode C
	TACAN ONLY
/M	No transponder
/N	Transponder with no Mode C
/P	Transponder with Mode C
	AREA NAVIGATION (RNAV)
/Y	LORAN, VOR/DME, or INS with no transponder
/C	LORAN, VOR/DME, or INS, transponder with no Mode C
/I	LORAN, VOR/DME, or INS, transponder with Mode C
	ADVANCED RNAV WITH TRANSPONDER AND MODE C (If an aircraft is unable to operate with a transponder and/or Mode C, it will revert to the appropriate code listed above under Area Navigation.)
/E	Flight Management System (FMS) with en route, terminal, and approach capability. Equipment requirements are: (a) Dual FMS which meets the specifications of AC 25-15, Approval of Flight Management Systems in Transport Category Airplanes; AC 20-129, Airworthiness Approval of Vertical Navigation (VNAV) Systems for use in the U.S. NAS and Alaska; AC 20-130A, Airworthiness Approval of Navigation or Flight Management Systems Integrating Multiple Navigation Sensors; or equivalent criteria as approved by Flight Standards. (b) A flight director and autopilot control system capable of following the lateral and vertical FMS flight path. (c) At least dual inertial reference units (IRU's). (d) A database containing the waypoints and speed/altitude constraints for the route and/or procedure to be flown that is automatically loaded into the FMS flight plan. (e) An electronic map. (U.S. and U.S. territories only unless otherwise authorized.)
/F	A single FMS with en route, terminal, and approach capability that meets the equipment requirements of /E, (a) through (d), above. (U.S. and U.S. territories only unless otherwise authorized.)
/G	Global Positioning System (GPS)/Global Navigation Satellite System (GNSS) equipped aircraft with en route and terminal capability
/R	Required Navigational Performance (Denotes capability to operate in RNP designated airspace and routes)
/W	Reduced Vertical Separation Minima (RVSM)
/Q	Required Navigation Performance (RNP) and Reduced Vertical Separation Minima (RVSM) (Indicate approval for application of RNP and RVSM separation standards.) It should be noted that /Q is for automation purposes only and will not be filed by system users. FAA processors will convert the combination of /R+/W to =/Q.

TBL 2-3-3

Clearance Abbreviations

Abbreviation	*Meaning*
A	Cleared to airport (point of intended landing)
B	Center clearance delivered
C	ATC clears (when clearance relayed through non-ATC facility)
CAF	Cleared as filed
D	Cleared to depart from the fix
F	Cleared to the fix
H	Cleared to hold and instructions issued
L	Cleared to land
N	Clearance not delivered
O	Cleared to the outer marker
PD	Cleared to climb/descend at pilot's discretion
Q	Cleared to fly specified sectors of a NAVAID defined in terms of courses, bearings, radials or quadrants within a designated radius.
T	Cleared through (for landing and takeoff through intermediate point)
V	Cleared over the fix
X	Cleared to cross (airway, route, radial) at (point)
Z	Tower jurisdiction

TBL 2-3-4

Miscellaneous Abbreviations

Abbreviation	*Meaning*
BC	Back course approach
CT	Contact approach
FA	Final approach
FMS	Flight management system approach
GPS	GPS approach
I	Initial approach
ILS	ILS approach
MA	Missed approach
MLS	MLS approach
NDB	Nondirectional radio beacon approach
OTP	VFR conditions-on-top
PA	Precision approach
PT	Procedure turn
RA	Resolution advisory (Pilot reported TCAS event)
RH	Runway heading
RP	Report immediately upon passing (fix/altitude)
RX	Report crossing
SA	Surveillance approach
SI	Straight-in approach
TA	TACAN approach
TL	Turn left
TR	Turn right
VA	Visual approach
VR	VOR approach

TBL 2-3-5

Control Information Symbols [Part 1]

Symbols	*Meaning*
T→( )	Depart (direction, if specified)
↑	Climb and maintain
↓	Descend and maintain
→	Cruise
@	At
X	Cross
→M→	Maintain
⩥	Join or intercept airway/jet route/track or course
=	While in controlled airspace
△	While in control area
⩥△	Enter control area
△⩥	Out of control area
NW NE E	Cleared to enter, depart or through surface area. Indicated direction of flight by arrow and appropriate compass letter. Maintain Special VFR conditions (altitude if appropriate) while in surface area.
250 K	Aircraft requested to adjust speed to 250 knots.
-20 K	Aircraft requested to reduce speed 20 knots.
+30 K	Aircraft requested to increase speed 30 knots.
Ⓦ	Local Special VFR operations in the vicinity of (name) airport are authorized until(time). Maintain special VFR conditions (altitude if appropriate).
>	Before
<	After or Past
170 (red)	Inappropriate altitude/flight level for direction of flight. (Underline assigned altitude/flight level in red).
/	Until
( )	Alternate instructions
Restriction	Restriction
⩥	At or Below
⩥	At or Above
-(Dash)	From-to (route, time, etc.)
(Alt)B(Alt)	Indicates a block altitude assignment. Altitudes are inclusive, and the first altitude shall be lower than the second. *Example*: 310B370
v <	Clearance void if aircraft not off ground by (time)
NOTE: The absence of an airway route number between two fixes in the route of flight indicates "direct"; no symbol or abbreviation is required.	

FIG 2-3-6

Control Information Symbols [Part 2]

Symbols	*Meaning*
℄	Pilot canceled flight plan
✓	*EN ROUTE*: Aircraft has reported at assigned altitude, *Example*: 80 ✓
✓	*TERMINAL/FSS*: Information forwarded (indicated information forwarded as required)
○ (red)	*EN ROUTE*: Information or revised information forwarded. (Circle, in red, inappropriate altitude/flight level for direction of flight or other control information when coordinated. Also circle, in red, the time (minutes and altitude) when a flight plan or estimate is forwarded. Use method in both inter-center and intra-center coordination.)
(50)	Other than assigned altitude reported (circle reported altitude)
10 / 6	DME holding (use with mileages)(Upper figure indicates distance from station to DME fix, lower figure indicates length of holding pattern.) In this example, the DME fix is 10 miles out with a 6 mile pattern indicated.
(ml.)(dir.)	DME arc of VORTAC, TACAN, or MLS.
(freq.)	Contact (facility) or (freq.), (time, fix, or altitude if appropriate). Insert frequency only when it is other than standard.
R	Radar contact.
R	*EN ROUTE*: Requested altitude (preceding altitude information)
R	Radar service terminated
R	Radar contact lost
RV	Radar vector
RX	Pilot resumed own navigation
(R)	Radar handoff (circle symbol when handoff completed)
E (red)	EMERGENCY
W (red)	WARNING
P	Point out initiated. Indicate the appropriate facility, sector or position. *Example*: PZFW.
FUEL	Minimum fuel
NOTE: The absence of an airway route number between two fixes in the route of flight indicates "direct"; no symbol or abbreviation is required.	

FIG 2-3-7

Section 4. Radio and Interphone Communications

2-4-1. RADIO COMMUNICATIONS

Use radio frequencies for the special purposes for which they are intended. A single frequency may be used for more than one function except as follows:

TERMINAL. When combining positions in the tower, do not use ground control frequency for airborne communications.

NOTE-
Due to the limited number of frequencies assigned to towers for the ground control function, it is very likely that airborne use of a ground control frequency could cause interference to other towers or interference to your aircraft from another tower. When combining these functions, it is recommended combining them on local control. The ATIS may be used to specify the desired frequency.

2-4-2. MONITORING

Monitor interphones and assigned radio frequencies continuously.

NOTE-
Although all FAA facilities, including RAPCON's and RATCF's, are required to monitor all assigned frequencies continuously, USAF facilities may not monitor all unpublished discrete frequencies.

2-4-3. PILOT ACKNOWLEDGMENT/READ BACK

a. When issuing clearances or instructions ensure acknowledgment by the pilot.

NOTE-
Pilots may acknowledge clearances, instructions, or other information by using "Wilco," "Roger," "Affirmative," or other words or remarks.

REFERENCE-
AIM, Contact Procedures, Para 4-2-3.

b. If altitude, heading, or other items are read back by the pilot, ensure the read back is correct. If incorrect or incomplete, make corrections as appropriate.

2-4-4. AUTHORIZED INTERRUPTIONS

As necessary, authorize a pilot to interrupt his/her communications guard.

NOTE-
Some users have adopted procedures to insure uninterrupted receiving capability with ATC when a pilot with only one operative communications radio must interrupt his/her communications guard because of a safety related problem requiring airborne communications with his/her company. In this event, pilots will request approval to abandon guard on the assigned ATC frequency for a mutually agreeable time period. Additionally, they will inform controllers of the NAVAID voice facility and the company frequency they will monitor.

2-4-5. AUTHORIZED TRANSMISSIONS

Transmit only those messages necessary for air traffic control or otherwise contributing to air safety.

REFERENCE-
FAAO 7210.3, Authorized Messages Not Directly Associated with AT Services, Para 3-2-2.

2-4-6. FALSE OR DECEPTIVE COMMUNICATIONS

Take action to detect, prevent, and report false, deceptive, or phantom controller communications to an aircraft or controller. The following shall be accomplished when false or deceptive communications occur:

a. Correct false information.

b. Broadcast an alert to aircraft operating on all frequencies within the area where deceptive or phantom transmissions have been received.

EXAMPLE-
"Attention all aircraft. False ATC instructions have been received in the area of Long Beach Airport. Exercise extreme caution on all frequencies and verify instructions."

c. Collect pertinent information regarding the incident.

d. Notify the operations supervisor of the false, deceptive, or phantom transmission and report all relevant information pertaining to the incident.

2-4-7. AUTHORIZED RELAYS

a. Relay operational information to aircraft or aircraft operators as necessary. Do not agree to handle such messages on a regular basis. Give the source of any such message you relay.

b. Relay official FAA messages as required.

NOTE-
The FAA Administrator and Deputy Administrator will sometimes use code phrases to identify themselves in air-to-ground communications as follows:
Administrator- "SAFEAIR ONE."
Deputy Administrator- "SAFEAIR TWO."

EXAMPLE-
"Miami Center, Jetstar One, this is SAFEAIR ONE, (message)."

c. Relay operational information to military aircraft operating on, or planning to operate on IR's.

2-4-8. RADIO MESSAGE FORMAT

Use the following format for radio communications with an aircraft:

a. Sector/position on initial radio contact:

1. Identification of aircraft.
2. Identification of ATC unit.
3. Message (if any).
4. The word "over" if required.

b. Subsequent radio transmissions from the same sector/position shall use the same format, except the identification of the ATC unit may be omitted.

TERMINAL. You may omit aircraft identification after initial contact when conducting the final portion of a radar approach.

REFERENCE-
FAAO 7110.65, Aircraft Identification, Para 2-4-20.

2-4-9. ABBREVIATED TRANSMISSIONS

Transmissions may be abbreviated as follows:

a. Use the identification prefix and the last 3 digits or letters of the aircraft identification after communications have been established. Do not abbreviate similar sounding aircraft identifications or the identification of an air carrier or other civil aircraft having an FAA authorized call sign.

REFERENCE-
FAAO 7110.65, Aircraft Identification, Para 2-4-20.

b. Omit the facility identification after communication has been established.

c. Transmit the message immediately after the callup (without waiting for the aircraft's reply) when the message is short and receipt is generally assured.

d. Omit the word "over" if the message obviously requires a reply.

2-4-10. INTERPHONE TRANSMISSION PRIORITIES

Give priority to interphone transmissions as follows:

a. First priority. Emergency messages including essential information on aircraft accidents or suspected accidents. After an actual emergency has passed, give a lower priority to messages relating to that accident.

b. Second priority. Clearances and control instructions.

c. Third priority. Movement and control messages using the following order of preference when possible:

1. Progress reports.
2. Departure or arrival reports.
3. Flight plans.

d. Fourth priority. Movement messages on VFR aircraft.

2-4-11. PRIORITY INTERRUPTION

Use the words "emergency" or "control" for interrupting lower priority messages when you have an emergency or control message to transmit.

2-4-12. INTERPHONE MESSAGE FORMAT

Use the following format for interphone intra/interfacility communications:

a. Both the caller and receiver identify their facility and/or position in a manner that insures they will not be confused with another position.

NOTE-
Other means of identifying a position, such as substituting departure or arrival gate/fix names for position identification, may be used. However, it must be operationally beneficial, and the procedure fully covered in a letter of agreement or a facility directive, as appropriate.

EXAMPLE-
Caller- "Albuquerque Center Sixty Three, Amarillo Departure."

Receiver- "Albuquerque Center."

b. Between two facilities which utilize numeric position identification, the caller must identify both facility and position.

EXAMPLE-
Caller- "Albuquerque Sixty Three, Fort Worth Eighty Two."

c. Caller states the type of coordination to be accomplished when advantageous. For example, handoff or APREQ.

d. The caller states the message.

e. The receiver states the response to the caller's message followed by the receiver's operating initials.

f. The caller states his or her operating initials.

EXAMPLE-

1.
Caller- "Denver High, R Twenty-five."

Receiver- "Denver High."

Caller- "Request direct Denver for Northwest Three Twenty-eight."

Receiver- "Northwest Three Twenty-eight direct Denver approved. H.F."

Caller- "G.M."

2.
Receiver- "Denver High, Go ahead override."

Caller- "R Twenty-five, Request direct Denver for Northwest Three Twenty-eight."

Receiver- "Northwest Three Twenty-eight direct Denver approved. H.F."

Caller- "G.M."

3.
Caller- ("Bolos" is a departure gate in Houston ARTCC's Sabine sector)- "Bolos, Houston local."

Receiver- "Bolos."

Caller- "Request Flight Level three five zero for American Twenty-five."

Receiver- "American Twenty-five Flight Level three five zero approved, A.C."

Caller- "G.M."

4.
Caller- "Sector Twelve, Ontario Approach, APREQ."

Receiver- "Sector Twelve."

Caller- "Cactus Five forty-two heading one three zero and climbing to one four thousand."

Receiver- "Cactus Five forty-two heading one three zero and climbing to one four thousand approved. B.N."

Caller- "A.M."

5.
Caller- "Zanesville, Columbus, seventy-three line, handoff."

Receiver- "Zanesville."

Caller- "Five miles east of Appleton VOR, United Three Sixty-six."

Receiver- "United Three Sixty-six, radar contact, A.Z."

Caller- "M.E."

g. Identify the interphone voice line on which the call is being made when two or more such lines are collocated at the receiving operating position.

EXAMPLE-
"Washington Center, Washington Approach on the Fifty Seven line."

"Chicago Center, O'Hare Tower handoff on the Departure West line."

h. *TERMINAL.* The provisions of subparas a, b, c, e, f, g, and para 2-4-13, Interphone Message Termination, may be omitted provided:

1. Abbreviated standard coordination procedures are contained in a facility directive describing the specific conditions and positions that may utilize an abbreviated interphone message format; and

2. There will be no possibility of misunderstanding which positions are using the abbreviated procedures.

2-4-13. INTERPHONE MESSAGE TERMINATION

Terminate interphone messages with your operating initials.

2-4-14. WORDS AND PHRASES

Use the words or phrases in radiotelephone and interphone communication as contained in the P/CG. The word "heavy" shall be used as part of the identification of heavy jet aircraft as follow:

TERMINAL. In all communications with or about heavy jet aircraft.

EN ROUTE. The use of the word heavy may be omitted except as follows:

a. In communications with a terminal facility about heavy jet operations.

b. In communications with or about heavy jet aircraft with regard to an airport where the en route center is providing approach control service.

c. In communications with or about heavy jet aircraft when the separation from a following aircraft may become less than 5 miles by approved procedure.

d. When issuing traffic advisories.

EXAMPLE-
"United Fifty-Eight Heavy."

NOTE-
Most airlines will use the word "heavy" following the company prefix and flight number when establishing communications or when changing frequencies within a terminal facility's area.

e. When in radio communications with "Air Force One" or "Air Force Two," do not add the heavy designator to the call sign. State only the call sign "Air Force One/Two" regardless of the type aircraft.

2-4-15. EMPHASIS FOR CLARITY

Emphasize appropriate digits, letters, or similar sounding words to aid in distinguishing between similar sounding aircraft identifications. Additionally:

a. Notify each pilot concerned when communicating with aircraft having similar sounding identifications.

EXAMPLE-
"United Thirty-one United, Miami Center, U.S. Air Thirty-one is also on this frequency, acknowledge."

"U.S. Air Thirty-one U.S. Air, Miami Center, United Thirty-one is also on this frequency, acknowledge."

REFERENCE-
FAAO 7110.65, Aircraft Identification, Para 2-4-20.
FAAO 7210.3, Aircraft Identification Problems, Para 2-1-12.

b. Notify the operations supervisor-in-charge of any duplicate flight identification numbers or phonetically similar-sounding call signs when the aircraft are operating simultaneously within the same sector.

REFERENCE-
FAAO 7210.3, Aircraft Identification Problems, Para 2-1-12.

NOTE-
This is especially important when this occurs on a repetitive, rather than an isolated, basis.

2-4-16. ICAO PHONETICS

Use the ICAO pronunciation of numbers and individual letters. (See the ICAO radiotelephony alphabet and pronunciation in TBL 2-4-1.)

ICAO Phonetics

Character	*Word*	*Pronunciation*
0	Zero	ZE-RO
1	One	WUN
2	Two	TOO
3	Three	TREE
4	Four	FOW-ER
5	Five	FIFE
6	Six	SIX
7	Seven	SEV-EN
8	Eight	AIT
9	Nine	NIN-ER
A	Alfa	**ALFAH**
B	Bravo	**BRAHVOH**
C	Charlie	**CHARLEE**
D	Delta	**DELLTAH**
E	Echo	**ECKOH**
F	Foxtrot	**FOKS**TROT
G	Golf	GOLF
H	Hotel	HOHTELL
I	India	**IN**DEE AH
J	Juliett	**JEW**LEE ETT
K	Kilo	**KEY**LOH
L	Lima	**LEE**MAH
M	Mike	MIKE
N	November	NOVEMBER
O	Oscar	**OSS**CAH
P	Papa	PAH**PAH**
Q	Quebec	**KEHBECK**
R	Romeo	**ROW**ME OH
S	Sierra	SEE**AIR**AH
T	Tango	**TANG**GO
U	Uniform	**YOU**NEE FORM
V	Victor	**VIK**TAH
W	Whiskey	**WISS**KEY
X	X-ray	**ECKS**RAY
Y	Yankee	**YANG**KEY
Z	Zulu	**ZOO**LOO

TBL 2-4-1

NOTE-
Syllables to be emphasized in pronunciation are in bold face.

2-4-17. NUMBERS USAGE

State numbers as follows:

a. Serial numbers. The separate digits.

EXAMPLE-

Number	*Statement*
11,495	"One one four niner five."
20,069	"Two zero zero six niner."

b. Altitudes or flight levels:

1. Altitudes. Pronounce each digit in the number of hundreds or thousands followed by the word "hundred" or "thousand" as appropriate.

EXAMPLE-

Number	*Statement*
10,000	"One zero thousand."
11,000	"One one thousand."
17,900	"One seven thousand niner hundred."

NOTE-
Altitudes may be restated in group form for added clarity if the controller chooses.

EXAMPLE-

Number	*Statement*
10,000	"Ten thousand."
11,000	"Eleven thousand."
17,900	"Seventeen thousand niner hundred."

2. Flight levels. The words "flight level" followed by the separate digits of the flight level.

EXAMPLE-

Flight level	*Statement*
180	"Flight level one eight zero."
275	"Flight level two seven five."

3. MDA/DH Altitudes. The separate digits of the MDA/DH altitude.

EXAMPLE-

MDA/DH Altitude	*Statement*
1,320	"Minimum descent altitude, one three two zero."
486	"Decision height, four eight six."

c. Time:

1. General time information. The four separate digits of the hour and minute/s in terms of UTC.

EXAMPLE-

UTC	*Time (12 hr.)*	*Statement*
0715	1:15 a.m. CST	"Zero seven one five."
1915	1:15 p.m. CST	"One niner one five."

2. Upon request. The four separate digits of the hours and minute/s in terms of UTC followed by the local standard time equivalent; or the local time equivalent only. Local time may be based on the 24-hour clock system, and the word "local" or the time zone equivalent shall be stated when other than UTC is referenced. The term "ZULU" may be used to denote UTC.

EXAMPLE-

UTC	*Time (24 hr.)*	*Time (12 hr.)*	*Statement*
2230	1430 PST	2:30 p.m.	"Two two three zero, one four three zero Pacific or Local." or "Two-thirty P-M."

3. Time check. The word "time" followed by the four separate digits of the hour and minutes, and nearest quarter minute. Fractions of a quarter minute less than eight seconds are stated as the preceding quarter minute; fractions of a quarter minute of eight seconds or more are stated as succeeding quarter minute.

EXAMPLE-

Time	*Statement*
1415:06	"Time, one four one five."
1415:10	"Time, one four one five and one-quarter."

4. Abbreviated time. The separate digits of the minutes only.

EXAMPLE-

Time	*Statement*
1415	"One five."
1420	"Two zero."

5. Field elevation. The words "field elevation" followed by the separate digits of the elevation.

EXAMPLE-

Elevation	*Statement*
17 feet	"Field elevation, one seven."
817 feet	"Field elevation, eight one seven."
2,817 feet	"Field elevation, two eight one seven."

d. The number "0" as "zero" except where it is used in approved "group form" for authorized aircraft call signs, and in stating altitudes.

EXAMPLE-

As Zero	*As Group*
"Field elevation one six zero."	"Western five thirty."
"Heading three zero zero."	"EMAIR One Ten."
"One zero thousand five hundred."	"Ten thousand five hundred."

e. Altimeter setting. The word "altimeter" followed by the separate digits of the altimeter setting.

EXAMPLE-

Setting	*Statement*
30.01	"Altimeter, three zero zero one."

f. Surface wind. The word "wind" followed by the separate digits of the indicated wind direction to the nearest 10-degree multiple, the word "at" and the separate digits of the indicated velocity in knots.

EXAMPLE-
"Wind zero three zero at two five."
"Wind two seven zero at one five gusts three five."

g. Heading. The word "heading" followed by the three separate digits of the number of degrees, omitting the word "degrees." Use heading 360 degrees to indicate a north heading.

EXAMPLE-

Heading	*Statement*
5 degrees	"Heading zero zero five."
30 degrees	"Heading zero three zero."
360 degrees	"Heading three six zero."

h. Radar beacon codes. The separate digits of the 4-digit code.

EXAMPLE-

Code	*Statement*
1000	"One zero zero zero."
2100	"Two one zero zero."

i. Runways. The word "runway," followed by the separate digits of the runway designation. For a parallel runway, state the word "left," "right," or "center" if the letter "L," "R," or "C" is included in the designation.

EXAMPLE-

Designation	*Statement*
3	"Runway Three."
8L	"Runway Eight Left."
27R	"Runway Two Seven Right."

j. Frequencies.

1. The separate digits of the frequency, inserting the word "point" where the decimal point occurs.

(a) Omit digits after the second digit to the right of the decimal point.

(b) When the frequency is in the L/MF band, include the word "kiloHertz."

EXAMPLE-

Frequency	*Statement*
126.55 MHz	"One two six point five five."
369.0 MHz	"Three six niner point zero."
121.5 MHz	"One two one point five."
135.275 MHz	"One three five point two seven."
302 kHz	"Three zero two kiloHertz."

2. *USAF/USN.* Local channelization numbers may be used in lieu of frequencies for locally based aircraft when local procedures are established to ensure that local aircraft and ATC facilities use the same channelization.

EXAMPLE-

Frequency	*Statement*
275.8 MHz	"Local channel one six."

3. Issue MLS/TACAN frequencies by stating the assigned two- or three-digit channel number.

EXAMPLE-
"M-L-S channel Five Three Zero."
"TACAN channel Nine Seven."

k. Speeds.

1. The separate digits of the speed followed by "knots" except as required by para 5-7-2, Methods.

EXAMPLE-

Speed	*Statement*
250	"Two five zero knots."
190	"One niner zero knots."

2. The separate digits of the Mach number preceded by "Mach."

EXAMPLE-

Mach Number	*Statement*
1.5	"Mach one point five."
0.64	"Mach point six four."
0.7	"Mach point seven."

l. Miles. The separate digits of the mileage followed by the word "mile."

EXAMPLE-
"Three zero mile arc east of Nottingham."
"Traffic, one o'clock, two five miles, northbound, D-C Eight, flight level two seven zero."

2-4-18. NUMBER CLARIFICATION

a. If deemed necessary for clarity, and after stating numbers as specified in para 2-4-17, Numbers Usage, controllers may restate numbers using either group or single-digit form.

EXAMPLE-
"One Seven Thousand, Seventeen Thousand."
"Altimeter Two Niner Niner Two, Twenty Nine Ninety Two."
"One Two Six Point Five Five, One Twenty Six Point Fifty Five."

2-4-19. FACILITY IDENTIFICATION

Identify facilities as follows:

a. Airport traffic control towers. State the name of the facility followed by the word "tower." Where military and civil airports are located in the same general area and have similar names, state the name of the military service followed by the name of the military facility and the word "tower."

EXAMPLE-
"Columbus Tower."
"Barksdale Tower."
"Navy Jacksonville Tower."

b. Air route traffic control centers. State the name of the facility followed by the word "center."

c. Approach control facilities, including RAPCON's, RATCF's, and ARAC's. State the name of the facility followed by the word "approach." Where military and civil facilities are located in the same general area and have similar names, state the name of the military service followed by the name of the military facility and the word "approach."

EXAMPLE-
"Denver Approach."
"Griffiss Approach."
"Navy Jacksonville Approach."

d. Functions within a terminal facility. State the name of the facility followed by the name of the function.

EXAMPLE-
"Boston Departure."
"LaGuardia Clearance Delivery."
"O'Hare Ground."

e. When calling or replying on an interphone line which connects only two non-VSCS equipped facilities, you may omit the facility name.

EXAMPLE-
"Bradford High, Handoff."

f. FAA flight service stations. State the name of the station followed by the word "radio."

EXAMPLE-
"Altoona Radio."

g. Radar facilities having ASR or PAR but not providing approach control service. State the name of the facility, followed by the letters "G-C-A."

EXAMPLE-
"Corpus Christi G-C-A."
"Davison G-C-A."

2-4-20. AIRCRAFT IDENTIFICATION

Use the full identification in reply to aircraft with similar sounding identifications. For other aircraft, the same identification may be used in reply that the pilot used in his/her initial callup except use the correct identification after communications have been established. Identify aircraft as follows:

a. U.S. registry aircraft. State one of the following:

REFERENCE-
FAAO 7110.65, Radio Message Format, Para 2-4-8.
FAAO 7110.65, Abbreviated Transmissions, Para 2-4-9.
FAAO 7110.65, Emphasis for Clarity, Para 2-4-15.
FAAO 7110.65, Numbers Usage, Para 2-4-17.

1. Civil. State the prefix "November" when establishing initial communications with U.S. registered aircraft followed by the ICAO phonetic pronunciation of the numbers/letters of the aircraft registration. The controller may state the aircraft type, the model, the manufacturer's name, followed by the ICAO phonetic pronunciation of the numbers/letters of the aircraft registration if used by the pilot on the initial or subsequent call.

EXAMPLE-
Air traffic controller's initiated call:

"November One Two Three Four Golf."
"November One Two Three Four."

Responding to pilot's initial or subsequent call:

"Jet Commander One Two Three Four Papa."
"Bonanza One Two Three Four Tango."
"Sikorsky Six Three Eight Mike Foxtrot."

NOTE-
If aircraft identification becomes a problem when the procedures specified above are used, the call sign shall be restated after the flight number of the aircraft involved.

EXAMPLE-
"American Five Twenty-One American."
"Commuter Six Eleven Commuter."
"General Motors Thirty-Seven General Motors."

REFERENCE-
FAAO 7210.3, Aircraft Identification Problems, Para 2-1-12.

2. Air carrier and other civil aircraft having FAA authorized call signs. State the call sign followed by the flight number in group form.

NOTE-
"Group form" is the pronunciation of a series of numbers as the whole number, or pairs of numbers they represent rather than pronouncing each separate digit. The use of group form may, however, be negated by four-digit identifiers or the placement of zeros in the identifier.

EXAMPLE-
"American Fifty-Two."
"Delta One Hundred."
"Eastern Metro One Ten."
"General Motors Thirty Fifteen."
"United One Zero One."
"Delta Zero One Zero."
"TWA Ten Zero Four."

NOTE-
Air carrier and other civil aircraft having FAA authorized call signs may be pronounced using single digits if necessary for clarity.

EXAMPLE-
"United Five One Seven."
"United Five Seven Zero."

3. Air taxi and commercial operators not having FAA authorized call signs. State the prefix "TANGO" on initial contact, if used by the pilot, followed by the registration number. The prefix may be dropped in subsequent communications.

EXAMPLE-
"Tango Mooney Five Five Five Two Quebec."
"Tango November One Two Three Four."

4. Air carrier/taxi ambulance. State the prefix, "Lifeguard," if used by the pilot, followed by the call sign and flight number in group form.

EXAMPLE-
"Lifeguard Delta Fifty-One."

5. Civilian air ambulance. State the word "LIFEGUARD" followed by the numbers/letters of the registration number.

EXAMPLE-
"Lifeguard Two Six Four Six."

6. U.S. military. State one of the following:

(a) The service name, followed by the word "copter," when appropriate, and the last 5 digits of the serial number.

EXAMPLE-
"Navy Five Six Seven One Three."
"Coast Guard Six One Three Two Seven."
"Air Guard One Three Five Eight Six"
"Army Copter Three Two One Seven Six."

NOTE-
If aircraft identification becomes a problem, the procedures reflected in FAAO 7210.3, Aircraft Identification Problems, para 2-1-12, will apply.

(b) Special military operations. State one of the following followed by the last 5 digits of the serial number:

(c) Air evacuation flights. "AIR EVAC," "MARINE AIR EVAC," or "NAVY AIR EVAC."

EXAMPLE-
"Air Evac One Seven Six Five Two."

(d) Rescue flights. (Service name) "RESCUE."

EXAMPLE-
"Air Force Rescue Six One Five Seven Niner."

(e) Air Mobility Command. "REACH."

EXAMPLE-
"Reach Seven Eight Five Six Two."

(f) Special Air Mission. "SAM."

EXAMPLE-
"Sam Niner One Five Six Two."

(g) USAF Contract Aircraft "LOGAIR."

EXAMPLE-
"Logair Seven Five Eight Two Six."

(h) Military tactical and training:

(1) U.S. Air Force, Air National Guard, Military District of Washington priority aircraft, and USAF civil disturbance aircraft. Pronounceable words of 3 to 6 letters followed by a 1 to 5 digit number.

EXAMPLE-
"Paul Two Zero."
"Pat One Five Seven."
"Gaydog Four."

NOTE-
When the "Z" suffix described in para 2-3-6, USAF/USN Undergraduate Pilots, is added to identify aircraft piloted by USAF undergraduate pilots, the call sign will be limited to a combination of six characters.

(2) Navy or Marine fleet and training command aircraft. The service name and 2 letters, or a digit and a letter (use letter phonetic equivalents), followed by 2 or 3 digits.

EXAMPLE-
"Navy Golf Alfa Two One."
"Marine Four Charlie Two Three Six."

(i) NORAD interceptors. An assigned double letter 2-digit flight number.

EXAMPLE-
"Alfa Kilo One Five."

7. Presidential aircraft and Presidential family aircraft:

(a) When the President is aboard a military aircraft, state the name of the military service, followed by the word "One."

EXAMPLE-
"Air Force One."
"Army One."
"Marine One."

(b) When the President is aboard a civil aircraft, state the words "Executive One."

(c) When a member of the President's family is aboard any aircraft, if the U.S. Secret Service or the White House Staff determines it is necessary, state the words "Executive One Foxtrot."

REFERENCE-
FAAO 7110.65, Operational Priority, Para 2-1-4.

8. Vice Presidential aircraft:

(a) When the Vice President is aboard a military aircraft, state the name of the military service, followed by the word "Two."

EXAMPLE-
"Air Force Two."
"Army Two."
"Marine Two."

(b) When the Vice President is aboard a civil aircraft, state the words "Executive Two."

(c) When a member of the Vice President's family is aboard any aircraft, if the U.S. Secret Service or the White House Staff determines it is necessary, state the words "Executive Two Foxtrot."

REFERENCE-
FAAO 7110.65, Operational Priority, Para 2-1-4.

9. DOT and FAA flights. The following alphanumeric identifiers and radio/interphone call signs are established for use in air/ground communications when the Secretary of Transportation, Deputy Secretary of Transportation, FAA Administrator or FAA Deputy Administrator have a requirement to identify themselves. (See TBL 2-4-2.)

DOT and FAA Alphanumeric Identifiers and Call Signs

Official	*Identifier*	*Call Sign*
Secretary of Transportation	DOT-1	Transport-1
Deputy Secretary of Transportation	DOT-2	Transport-2
Administrator, Federal Aviation Administration	FAA-1	Safeair-1
Deputy Administrator, Federal Aviation Administration	FAA-2	Safeair-2

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10. Other Special Flights.

(a) Department of Energy flights. State the letters "R-A-C" (use phonetic alphabet equivalents) followed by the last 4 separate digits of the aircraft registration number.

EXAMPLE-
"Romeo Alfa Charlie One Six Five Three."

(b) Flight Inspection of navigational aids. State the call sign "FLIGHT CHECK" followed by the digits of the registration number.

EXAMPLE-
"Flight Check Three Niner Six Five Four."

(c) USAF aircraft engaged in aerial sampling missions. State the call sign "SAMP" followed by the last three digits of the serial number.

EXAMPLE-
"SAMP Three One Six."

REFERENCE-
FAAO 7110.65, SAMP, Para 9-3-14.

11. Use a pilot's name in identification of an aircraft only in special or emergency situations.

b. Foreign registry. State one of the following:

1. Civil. State the aircraft type or the manufacturer's name followed by the letters/numbers of the aircraft registration, or state the letters or digits of the aircraft registration or call sign.

EXAMPLE-
"Stationair F-L-R-B."
"C-F-L-R-B."

NOTE-
Letters may be spoken individually or phonetically.

2. Air carrier. The abbreviated name of the operating company followed by the letters or digits of the registration or call sign.

EXAMPLE-
"Air France F-L-R-L-G."

3. The flight number in group form, or you may use separate digits if that is the format used by the pilot.

EXAMPLE-
"Scandinavian Sixty-eight."
"Scandinavian Six Eight."

4. Foreign Military. Except Canada, the name of the country and the military service followed by the separate digits or letters of the registration or call sign. Canadian Armed Force aircraft shall be identified by the word "Canforce" followed by the separate digits of the serial number, except that the Transport Command of the Canadian Armed Force shall be identified by the words "Canadian Military" and the Canadian Coast Guard shall be identified as "Canadian Coast Guard" followed by the separate digits of the serial number.

EXAMPLE-
"Canforce Five Six Two Seven."
"Brazilian Air Force Five Three Two Seven Six."

2-4-21. DESCRIPTION OF AIRCRAFT TYPES

Except for heavy aircraft, describe aircraft as follows when issuing traffic information.

a. Military:

1. Military designator, with numbers spoken in group form, or

2. Service and type, or

3. Type only if no confusion or misidentification is likely.

b. Air Carrier:

1. Manufacturer's model or designator.

2. Add the manufacturer's name, company name or other identifying features when confusion or misidentification is likely.

EXAMPLE-
"L-Ten-Eleven."
"American MD-Eighty. Seven Thirty-Seven."
"Boeing Seven Fifty-Seven."

NOTE-
Pilots of "interchange" aircraft are expected to inform the tower on the first radio contact the name of the operating company and trip number followed by the company name, as displayed on the aircraft, and the aircraft type.

c. General Aviation and Air Taxi:

1. Manufacturer's model, or designator.

2. Manufacturer's name, or add color when considered advantageous.

EXAMPLE-
"Tri-Pacer."
"P A Twenty-Two."
"Cessna Four-Oh-One."
"Blue and white King Air."
"Airliner."
"Sikorsky S-Seventy-Six."

d. When issuing traffic information to aircraft following a heavy jet, specify the word "heavy" before the manufacturer's name and model.

EXAMPLE-
"Heavy L-Ten-Eleven."
"Heavy C-Five."
"Heavy Boeing Seven Forty-Seven."

REFERENCE-
FAAO 7110.65, Traffic Advisories, Para 2-1-21.

2-4-22. AIRSPACE CLASSES

A, B, C, D, E, and G airspace are pronounced in the ICAO phonetics for clarification. The term "Class" may be dropped when referring to airspace in pilot/controller communications.

EXAMPLE-
"Cessna 123 Mike Romeo cleared to enter Bravo airspace."
"Sikorsky 123 Tango Sierra cleared to enter New York Bravo airspace."

Section 5. Route and NAVAID Description

2-5-1. AIRWAYS AND ROUTES

Describe airways, routes, or jet routes as follows:

a. VOR/VORTAC/TACAN airways or jet routes. State the word "Victor" or the letter "J" followed by the number of the airway or route in group form. For RNAV routes add the word "Romeo."

EXAMPLE-
"Victor Twelve."
"J Five Thirty-Three."
"Victor Seven Ten Romeo."
"J Eight Thirty Romeo."
"Offset One Zero miles right of J Eight Thirty Romeo."

b. VOR/VORTAC/TACAN alternate airways. State the word "Victor" followed by the number of the airway in group form and the alternate direction.

EXAMPLE-
"Victor Twelve South."

c. Colored/L/MF airways. State the color of the airway followed by the number in group form.

EXAMPLE-
"Blue Eighty-One."

d. Named Routes. State the words "North American Route" or "Bahama Route" followed by the number of the route in group form.

EXAMPLE-
"North American Route Sixty-Seven Bravo "
"Bahama Route Fifty-Five Victor."

e. Air Traffic Service (ATS) routes. State the letter(s) of the route phonetically, followed by the number of the route in group form.

EXAMPLE-
"Romeo Twenty."
"Alfa Fifty."
"Golf Sixty-one."
"Alfa Seven Hundred."

f. Military Training Routes (MTR's). State the letters "I-R "or "V-R" followed by the number of the route in group form.

EXAMPLE-
"I-R Five Thirty-one"
"V-R Fifty-two"

2-5-2. NAVAID TERMS

Describe radials, arcs, courses, bearings, and quadrants of NAVAID's as follows:

a. VOR/VORTAC/TACAN/MLS/GPS Waypoint. State the name of the NAVAID or GPS Waypoint followed by the separate digits of the radial/azimuth/bearing (omitting the word "degrees") and the word "radial/azimuth/bearing."

EXAMPLE-
"Appleton Zero Five Zero Radial."
"Lindburg Runway Two Seven M-L-S, Two Six Zero Azimuth."

b. Arcs about VOR-DME/VORTAC/TACAN/MLS NAVAID's. State the distance in miles from the NAVAID followed by the words "mile arc," the direction from the NAVAID in terms of the eight principal points of the compass, the word "of," and the name of the NAVAID.

EXAMPLE-
"Two Zero mile arc southwest of O'Hare Runway Two Seven Left M-L-S."

c. Quadrant within a radius of NAVAID. State direction from NAVAID in terms of the quadrant; e.g., NE, SE, SW, NW, followed by the distance in miles from the NAVAID.

EXAMPLE-
"Cleared to fly northeast quadrant of Phillipsburg VORTAC within Four Zero mile radius."

REFERENCE-
FAAO 7110.65, Route Use, Para 4-4-1.
P/CG Term- Quadrant.

d. Nondirectional beacons. State the course to or the bearing from the radio beacon, omitting the word "degree," followed by the words "course to" or "bearing from," the name of the radio beacon, and the words "radio beacon."

EXAMPLE-
"Three Four Zero bearing from Randolph Radio Beacon."

e. MLS. State the azimuth to or azimuth from the MLS, omitting the word "degree" followed by the words "azimuth to" or "azimuth from," the name of the MLS, and the term MLS.

EXAMPLE-
"Two Six Zero azimuth to Linburgh Runway Two Seven MLS."

2-5-3. NAVAID FIXES

Describe fixes determined by reference to a radial/localizer/azimuth and distance from a VOR-DME/VORTAC/TACAN/ILS-DME or MLS as follows:

a. When a fix is not named, state the name of the NAVAID followed by a specified radial /localizer/azimuth, and state the distance in miles followed by the phrase "mile fix."

EXAMPLE-
"Appleton Zero Five Zero radial Three Seven mile fix."
"Reno localizer back course Four mile fix."
"Hobby Runway One Two M-L-S Zero Niner Zero azimuth One Two mile fix."

b. When a fix is charted on a DP, STAR, en route chart, or approach plate, state the name of the fix.

c. Use specific terms to describe a fix. Do not use expressions such as "passing Victor Twelve" or "passing J Eleven."

Section 6. Weather Information

2-6-1. FAMILIARIZATION

Become familiar with pertinent weather information when coming on duty, and stay aware of current weather information needed to perform ATC duties.

2-6-2. HAZARDOUS INFLIGHT WEATHER ADVISORY SERVICE (HIWAS)

Controllers shall advise pilots of hazardous weather that may impact operations within 150 NM of their sector or area of jurisdiction. Hazardous weather information contained in HIWAS broadcasts includes Airmen's Meteorological Information (AIRMET), Significant Meteorological Information (SIGMET), Convective SIGMET (WST), Urgent Pilot Weather Reports (UUA), and Center Weather Advisories (CWA). Facilities shall review alert messages to determine the geographical area and operational impact for hazardous weather information broadcasts. The broadcast is not required if aircraft on your frequency(s) will not be affected.

a. Controllers within commissioned HIWAS areas shall broadcast a HIWAS alert on all frequencies, except emergency frequency, upon receipt of hazardous weather information. Controllers are required to disseminate data based on the operational impact on the sector or area of control jurisdiction.

NOTE-
The inclusion of the type and number of weather advisory responsible for the HIWAS advisory is optional.

PHRASEOLOGY-
ATTENTION ALL AIRCRAFT. HAZARDOUS WEATHER INFORMATION (SIGMET, Convective SIGMET, AIRMET, Urgent Pilot Weather Report (UUA), or Center Weather Advisory (CWA), Number or Numbers) FOR (geographical area) AVAILABLE ON HIWAS, FLIGHT WATCH, OR FLIGHT SERVICE FREQUENCIES.

b. Controllers outside of commissioned HIWAS areas shall:

1. Advise pilots of the availability of hazardous weather advisories. Pilots requesting additional information should be directed to contact the nearest Flight Watch or Flight Service.

2. Apply the same procedure when HIWAS outlets, or outlets with radio coverage extending into your sector or airspace under your jurisdiction, are out of service.

PHRASEOLOGY-
ATTENTION ALL AIRCRAFT. HAZARDOUS WEATHER INFORMATION FOR (geographical area) AVAILABLE FROM FLIGHT WATCH OR FLIGHT SERVICE.

c. Terminal facilities have the option to limit hazardous weather information broadcasts as follows: Tower cab and approach control facilities may opt to broadcast hazardous weather information alerts only when any part of the area described is within 50 NM of the airspace under their jurisdiction.

REFERENCE-
AIM, Chapter 7, Section 1, Meteorology, Para 7-1-5 through Para 7-1-9.

2-6-3. PIREP INFORMATION

Significant PIREP information includes reports of strong frontal activity, squall lines, thunderstorms, light to severe icing, wind shear and turbulence (including clear air turbulence) of moderate or greater intensity, volcanic eruptions and volcanic ash clouds, and other conditions pertinent to flight safety.

REFERENCE-
FAAO 7110.65, Low Level Wind Shear Advisories, Para 3-1-8.
FAAO 7210.3, Handling of SIGMET's, CWA's, and PIREP's, Para 6-3-1.
AIM, Flight Operations in Volcanic Ash, Para 7-5-8.
FAAO 7210.3, SIGMET and PIREP Handling, Para 10-3-1.

a. Solicit PIREP's when requested or when one of the following conditions exists or is forecast for your area of jurisdiction:

1. Ceilings at or below 5,000 feet. These PIREP's shall include cloud base/top reports when feasible.

TERMINAL. Ensure that at least one descent/climb-out PIREP, including cloud base/s, top/s, and other related phenomena, is obtained each hour.

EN ROUTE. When providing approach control services, the requirements stated in TERMINAL above apply.

2. Visibility (surface or aloft) at or less than 5 miles.

3. Thunderstorms and related phenomena.

4. Turbulence of moderate degree or greater.

5. Icing of light degree or greater.

6. Wind shear.

7. Volcanic ash clouds.

NOTE-
Pilots may forward PIREP's regarding volcanic activity using the format described in the Volcanic Activity Reporting Form (VAR) as depicted in the AIM, Appendix 2.

8. *TERMINAL.* Braking Action Advisories are in effect.

REFERENCE-
FAAO 7110.65, Braking Action Advisories, Para 3-3-5.
P/CG Term- Braking Action Advisories.

b. Record with the PIREP's:

1. Time.

2. Aircraft position.

3. Type aircraft.

4. Altitude.

5. When the PIREP involves icing include:

(a) Icing type and intensity.

(b) Air temperature in which icing is occurring.

c. Obtain PIREP's directly from the pilot, or if the PIREP has been requested by another facility, you may instruct the pilot to deliver it directly to that facility.

PHRASEOLOGY-
REQUEST FLIGHT CONDITIONS.

Or if appropriate,

REQUEST (specific conditions; i.e., ride, cloud, visibility, etc.) CONDITIONS.

If necessary,

OVER (fix),

or

ALONG PRESENT ROUTE,

or

BETWEEN (fix) AND (fix).

d. Handle PIREP's as follows:

1. Relay pertinent PIREP information to concerned aircraft in a timely manner.

2. *EN ROUTE.* Relay all operationally significant PIREP's to the facility weather coordinator.

3. *TERMINAL.* Relay all operationally significant PIREP's to:

(a) The appropriate intrafacility positions.

(b) The FSS serving the area in which the report was obtained.

NOTE-
The FSS is responsible for long line dissemination.

(c) Other concerned terminal or en route ATC facilities, including non-FAA facilities.

(d) Use the word *gain* and/or *loss* when describing to pilots the effects of wind shear on airspeed.

EXAMPLE-
"Delta Seven Twenty-one, a Boeing Seven Twenty-seven, previously reported wind shear, loss of Two Five knots at Four Hundred feet."

"U.S. Air Seventy-six, a D-C Niner, previously reported wind shear, gain of Twenty-Five knots between Niner Hundred and Six Hundred feet, followed by a loss of Five Zero knots between Five Hundred feet and the surface."

REFERENCE-
AIM, Wind Shear PIREP's, Para 7-1-22.

2-6-4. WEATHER AND CHAFF SERVICES

a. Issue pertinent information on observed/reported weather or chaff areas. Provide radar navigational guidance and/or approve deviations around weather or chaff areas when requested by the pilot. Do not use the word "turbulence" in describing radar-derived weather.

1. Issue weather and chaff information by defining the area of coverage in terms of azimuth (by referring to the 12-hour clock) and distance from the aircraft or by indicating the general width of the area and the area of coverage in terms of fixes or distance and direction from fixes.

2. Issue the level of echo intensity when that information is available.

3. When equipment limitations exist, controllers shall, at a minimum, ensure that the highest available level of echo intensity within their area of jurisdiction is displayed.

4. When a deviation cannot be approved as requested and the situation permits, suggest an alternative course of action.

b. In areas of significant weather, plan ahead and be prepared to suggest, upon pilot request, the use of alternative routes/altitudes.

NOTE-
Weather significant to the safety of aircraft includes such conditions as tornadoes, lines of thunderstorms, embedded thunderstorms, large hail, wind shear, moderate to extreme turbulence (including CAT), and light to severe icing.

c. Inform any tower for which you provide approach control services if you observe any weather echoes on radar which might affect their operations.

PHRASEOLOGY-
WEATHER/CHAFF AREA BETWEEN (number) O'CLOCK AND (number) O'CLOCK (number) MILES,

or

(number) MILE BAND OF WEATHER/CHAFF FROM (fix or number of miles and direction from fix) TO (fix or number of miles and direction from fix),

or

LEVEL (number(s)) WEATHER ECHO BETWEEN (number) O'CLOCK AND (number) O'CLOCK, (number) MILES. MOVING (direction) AT (number) KNOTS, TOPS (altitude),

or

DEVIATION APPROVED, (restrictions if necessary), ADVISE WHEN ABLE TO:

RETURN TO COURSE,
or
RESUME OWN NAVIGATION
or
FLY HEADING (heading)
or
PROCEED DIRECT TO (name of NAVAID). UNABLE DEVIATION (state possible alternate course of action).

EXAMPLE-
1. *"Level five weather echo between eleven o'clock and one o'clock, one zero miles. Moving east at two zero knots, tops flight level three niner zero."*

2. *"Level four weather echo between ten o'clock and two o'clock, one five miles. Weather area is two five miles in diameter."*

3. *"Level four and five weather echoes between ten o'clock and two o'clock, one five miles. Weather area is two five miles in diameter."*

4. *"Level two through four weather echoes between ten o'clock and two o'clock, one five miles. Weather area is two five miles in diameter."*

NOTE-
Phraseology using level number(s) is only applicable when the radar weather echo intensity information is determined by NWS radar equipment or digitized radar equipment.

REFERENCE-
P/CG Term- Radar Weather Echo Intensity Levels.

d. The supervisory traffic management coordinator-in-charge/operations supervisor/controller-in-charge shall verify the digitized radar weather information by the best means available (e.g., pilot reports, local tower personnel, etc.) if the weather data displayed by digitized radar is reported as questionable or erroneous. Errors in weather radar presentation shall be reported to the AF technician and the AT supervisor shall determine if the digitized radar derived weather data is to be displayed and a NOTAM distributed.

NOTE-
Anomalous propagation (AP) is a natural occurrence affecting radar and does not in itself constitute a weather circuit failure.

2-6-5. CALM WIND CONDITIONS

TERMINAL. Describe the wind as calm when the wind velocity is less than three knots.

REFERENCE-
FAAO 7110.65, Tailwind Components, Para 3-5-3.
FAAO 7110.65, Intersecting Runway Separation, Para 3-10-4.

2-6-6. REPORTING WEATHER CONDITIONS

a. When the prevailing visibility at the usual point of observation, or at the tower level, is less than 4 miles, tower personnel shall take prevailing visibility observations and apply the observations as follows:

1. Use the lower of the two observations (tower or surface) for aircraft operations.

2. Forward tower visibility observations to the weather observer.

3. Notify the weather observer when the tower observes the prevailing visibility decrease to less than 4 miles or increase to 4 miles or more.

b. Forward current weather changes to the appropriate control facility as follows:

1. When the official weather changes to a condition which is below 1,000-foot ceiling or below the highest circling minimum, whichever is greater, or less than 3 miles visibility, and when it improves to a condition which is better than those above.

2. Changes which are classified as special weather observations during the time that weather conditions are below 1,000-foot ceiling or the highest circling minimum, whichever is greater, or less than 3 miles visibility.

c. Towers at airports where military turbo-jet en route descents are routinely conducted shall also report the conditions to the ARTCC even if it is not the controlling facility.

d. If the receiving facility informs you that weather reports are not required for a specific time period, discontinue the reports. The time period specified should not exceed the duration of the receiving controller's tour of duty.

e. *EN ROUTE.* When you determine that weather reports for an airport will not be required for a specific time period, inform the FSS or tower of this determination. The time period specified should not exceed the duration of receiving controller's tour of duty.

REFERENCE-
FAAO 7110.65, Forwarding Approach Information by Nonapproach Control Facilities, Para 3-10-2.

2-6-7. DISSEMINATING WEATHER INFORMATION

TERMINAL. Observed elements of weather information shall be disseminated as follows:

a. General weather information, such as "large breaks in the overcast," "visibility lowering to the south," or similar statements which do not include specific values, and any elements derived directly from instruments, pilots, or radar may be transmitted to pilots or other ATC facilities without consulting the weather reporting station.

b. Specific values, such as ceiling and visibility, may be transmitted if obtained by one of the following means:

1. You are properly certificated and acting as official weather observer for the elements being reported.

NOTE-
USAF controllers do not serve as official weather observers.

2. You have obtained the information from the official observer for the elements being reported.

3. The weather report was composed or verified by the weather station.

4. The information is obtained from an official Automated Weather Observation System (AWOS) or an Automated Surface Observation System (ASOS).

c. Differences between weather elements observed from the tower and those reported by the weather station shall be reported to the official observer for the element concerned.

Section 7. Altimeter Settings

2-7-1. CURRENT SETTINGS

a. Current altimeter settings shall be obtained from direct-reading instruments or directly from weather reporting stations.

REFERENCE-
FAAO 7210.3, Chapter 2, Section 10, Wind/Altimeter Information.

b. If a pilot requests the altimeter setting in millibars, ask the nearest weather reporting station for the equivalent millibar setting.

c. USAF/USA. Use the term "Estimated Altimeter" for altimeter settings reported or received as estimated.

REFERENCE-
FAAO 7110.65, Departure Information, Para 3-9-1.
FAAO 7110.65, Landing Information, Para 3-10-1.
FAAO 7110.65, Approach Information, Para 4-7-10.

2-7-2. ALTIMETER SETTING ISSUANCE BELOW LOWEST USABLE FL

a. *TERMINAL.* Identify the source of an altimeter setting when issued for a location other than the aircraft's departure or destination airport.

b. *EN ROUTE.* Identify the source of all altimeter settings when issued.

PHRASEOLOGY-
THE (facility name) (time of report if more than one hour old) ALTIMETER (setting).

c. Issue the altimeter setting:

1. To en route aircraft at least one time while operating in your area of jurisdiction. Issue the setting for the nearest reporting station along the aircraft's route of flight:

NOTE-
14 CFR Section 91.121(1) requires that the pilot set his/her altimeter to the setting of a station along his/her route of flight within 100 miles of the aircraft if one is available. However, issuance of the setting of an adjacent station during periods that a steep gradient exists will serve to inform the pilot of the difference between the setting he/she is using and the pressure in the local area and better enable him/her to choose a more advantageous setting within the limitations of 14 CFR Section 91.121.

2. *TERMINAL.* To all departures. Unless specifically requested by the pilot, the altimeter setting need not be issued to local aircraft operators who have requested this omission in writing or to scheduled air carriers.

REFERENCE-
FAAO 7110.65, Departure Information, Para 3-9-1.

3. *TERMINAL.* To arriving aircraft on initial contact or as soon as possible thereafter. The tower may omit the altimeter if the aircraft is sequenced or vectored to the airport by the approach control having jurisdiction at that facility.

REFERENCE-
FAAO 7110.65, Approach Information, Para 4-7-10.
FAAO 7110.65, Approach Information, Para 5-10-2.

4. *EN ROUTE.* For the destination airport to arriving aircraft, approximately 50 miles from the destination, if an approach control facility does not serve the airport.

5. In addition to the altimeter setting provided on initial contact, issue changes in altimeter setting to aircraft executing a nonprecision instrument approach as frequently as practical when the official weather report includes the remarks "pressure falling rapidly."

d. If the altimeter setting must be obtained by the pilot of an arriving aircraft from another source, instruct the pilot to obtain the altimeter setting from that source.

NOTE-
1. The destination altimeter setting, whether from a local or remote source, is the setting upon which the instrument approach is predicated.

2. Approach charts for many locations specify the source of altimeter settings as non-FAA facilities, such as UNICOM's.

e. When issuing clearance to descend below the lowest usable flight level, advise the pilot of the altimeter setting of the weather reporting station nearest the point the aircraft will descend below that flight level.

f. Department of Defense (DOD) aircraft which operate on "single altimeter settings" (CFR Exemption 2861A) shall be issued altimeter settings in accordance with standard procedures while the aircraft are en route to and from their restricted areas, MOA's, and ATC assigned airspace areas.

g. When the barometric pressure is greater than 31.00 inches Hg., issue the altimeter setting and:

1. En Route/Arrivals. Advise pilots to remain set on altimeter 31.00 until reaching final approach segment.

2. Departures. Advise pilots to set altimeter 31.00 prior to reaching any mandatory/crossing altitude or 1,500 feet AGL, whichever is lower.

PHRASEOLOGY-

ALTIMETER, THREE ONE TWO FIVE, SET THREE ONE ZERO ZERO UNTIL REACHING THE FINAL APPROACH FIX.

or

ALTIMETER, THREE ONE ONE ZERO, SET THREE ONE ZERO ZERO PRIOR TO REACHING ONE THOUSAND THREE HUNDRED.

NOTE-

1. *Aircraft with Mode C altitude reporting will be displayed on the controller's radar scope with a uniform altitude offset above the assigned altitude. With an actual altimeter of 31.28 inches Hg, the Mode C equipped aircraft will show 3,300 feet when assigned 3,000 feet. This will occur unless local directives authorize entering the altimeter setting 31.00 into the computer system regardless of the actual barometric pressure.*

2. *Flight Standards will implement high barometric pressure procedures by NOTAM defining the geographic area affected.*

3. *Airports unable to accurately measure barometric pressures above 31.00 inches Hg. will report the barometric pressure as "missing" or "in excess of 31.00 inches of Hg." Flight operations to or from those airports are restricted to VFR weather conditions.*

REFERENCE-

AIM, Procedures, Para 7-2-2.
FAAO 7110.65, Landing Information, Para 3-10-1.

Section 8. Runway Visibility Reporting- *Terminal*

2-8-1. FURNISH RVR/RVV VALUES

Where RVR or RVV equipment is operational, irrespective of subsequent operation or nonoperation of navigational or visual aids for the application of RVR/RVV as a takeoff or landing minima, furnish the values for the runway in use in accordance with para 2-8-3, Terminology.

NOTE-
Readout capability of different type/model RVR equipment varies. For example, older equipment minimum readout value is 600 feet. Newer equipment may have minimum readout capability as low as 100 feet. Readout value increments also may differ. Older equipment have minimum readout increments of 200 feet. New equipment increments below 800 feet are 100 feet.

REFERENCE-
FAAO 6560.10, Runway Visual Range (RVR).
FAAO 6750.24, Instrument Landing System (ILS) and Ancillary Electronic Component Configuration & Perf. Req.

2-8-2. ARRIVAL/DEPARTURE RUNWAY VISIBILITY

a. Issue current touchdown RVR/RVV for the runway(s) in use:

1. When prevailing visibility is 1 mile or less regardless of the value indicated.

2. When RVR/RVV indicates a reportable value regardless of the prevailing visibility.

NOTE-
Reportable values are: RVR 6,000 feet or less; RVV $1\frac{1}{2}$ miles or less.

3. When it is determined from a reliable source that the indicated RVR value differs by more than 400 feet from the actual conditions within the area of the transmissometer, the RVR data is not acceptable and shall not be reported.

NOTE-
A reliable source is considered to be a certified weather observer, automated weather observing system, air traffic controller, flight service specialist, or pilot.

4. When the observer has reliable reports, or has otherwise determined that the instrument values are not representative of the associated runway, the data shall not be used.

b. Issue both mid-point and roll-out RVR when the value of either is less than 2,000 feet and the touchdown RVR is greater than the mid-point or roll-out RVR.

c. Local control shall issue the current RVR/RVV to each aircraft prior to landing or departure in accordance with subparas a and b.

2-8-3. TERMINOLOGY

a. Provide RVR/RVV information by stating the runway, the abbreviation RVR/RVV, and the indicated value. When issued along with other weather elements, transmit these values in the normal sequence used for weather reporting.

EXAMPLE-
"Runway One Four RVR Two Thousand Four Hundred."

"Runway Three Two RVV Three Quarters."

b. When two or more RVR systems serve the runway in use, report the indicated values for the different systems in terms of touchdown, mid, and rollout as appropriate.

EXAMPLE-
"Runway Two Two Left RVR Two Thousand, rollout One Thousand Eight Hundred."

"Runway Two Seven Right RVR One Thousand, mid Eight Hundred, rollout Six Hundred."

c. When there is a requirement to issue an RVR or RVV value and a visibility condition greater or less than the reportable values of the equipment is indicated, state the condition as "MORE THAN" or "LESS THAN" the appropriate minimum or maximum readable value.

EXAMPLE-
"Runway Three Six RVR more than Six Thousand."

"Runway Niner RVR One Thousand, rollout less than Six Hundred."

d. When a readout indicates a rapidly varying visibility condition (1,000 feet or more for RVR; one or more reportable values for RVV), report the current value followed by the range of visibility variance.

EXAMPLE-
"Runway Two Four RVR Two Thousand, variable One Thousand Six Hundred to Three Thousand."

"Runway Three One RVV Three-quarters, variable One-quarter to One."

REFERENCE-
FAAO 7110.65, Furnish RVR/RVV Values, Para 2-8-1.

Section 9. Automatic Terminal Information Service Procedures

2-9-1. APPLICATION

Use the ATIS, where available, to provide advance noncontrol airport/terminal area and meteorological information to aircraft.

a. Identify each ATIS message by a phonetic letter code word at both the beginning and the end of the message. Automated systems will have the phonetic letter code automatically appended. Exceptions may be made where omissions are required because of special programs or equipment.

1. Each alphabet letter phonetic word shall be used sequentially, except as authorized in subpara a2, beginning with "Alpha," ending with "Zulu," and repeated without regard to the beginning of a new day. Identify the first resumed broadcast message with "Alpha" or the first assigned alphabet letter word in the event of a broadcast interruption of more than 12 hours.

2. Specific sequential portions of the alphabet may be assigned between facilities or an arrival and departure ATIS when designated by a letter of agreement or facility directive.

REFERENCE-
FAAO 7210.3, Automatic Terminal Information Service (ATIS), Para 10-4-1.

b. The ATIS recording shall be reviewed for completeness, accuracy, speech rate, and proper enunciation before being transmitted.

c. Arrival and departure messages, when broadcast separately, need only contain information appropriate for that operation.

2-9-2. OPERATING PROCEDURES

Maintain an ATIS message that reflects the most current arrival and departure information.

a. Make a new recording when any of the following occur:

1. Upon receipt of any new official weather regardless of whether there is or is not a change in values.

2. When runway braking action reports are received that indicate runway braking is worse than that which is included in the current ATIS broadcast.

3. When there is a change in any other pertinent data, such as runway change, instrument approach in use, new or canceled NOTAM's/PIREP's/HIWAS update, etc.

b. When a pilot acknowledges that he/she has received the ATIS broadcast, controllers may omit those items contained in the broadcasts if they are current. Rapidly changing conditions will be issued by ATC, and the ATIS will contain the following:

EXAMPLE-
"Latest ceiling/visibility/altimeter/wind/(other conditions) will be issued by approach control/tower."

c. Broadcast on all appropriate frequencies to advise aircraft of a change in the ATIS code/message.

d. Controllers shall ensure that pilots receive the most current pertinent information. Ask the pilot to confirm receipt of the current ATIS information if the pilot does not initially state the appropriate ATIS code. Controllers shall ensure that changes to pertinent operational information is provided after the initial confirmation of ATIS information is established. Issue the current weather, runway in use, approach information, and pertinent NOTAM's to pilots who are unable to receive the ATIS.

EXAMPLE-
"Verify you have information ALPHA."

"Information BRAVO now current, visibility three miles."

"Information CHARLIE now current, Ceiling 1500 Broken."

2-9-3. CONTENT

Include the following in ATIS broadcast as appropriate:

a. Airport/facility name, phonetic letter code, time of weather sequence (UTC). Weather information consisting of wind direction and velocity, visibility, obstructions to vision, present weather, sky condition, temperature, dew point, altimeter, a density altitude advisory when appropriate and other pertinent remarks included in the official weather observation. Wind direction, velocity, and altimeter shall be reported from certified direct reading instruments. Temperature and dew point should be reported from certified direct reading sensors when available. Always include weather observation remarks of lightning, cumulonimbus, and towering cumulus clouds.

NOTE-
ASOS/AWOS is to be considered the primary source of wind direction, velocity, and altimeter data for weather observation purposes at those locations that are so equipped. The ASOS Operator Interface Device (OID) displays the magnetic wind as "MAG WND" in the auxiliary data location in the lower left-hand portion of the screen. Other OID displayed winds are true and are not to be used for operational purposes.

b. The ceiling/sky condition, visibility, and obstructions to vision may be omitted if the ceiling is above 5,000 feet and the visibility is more than 5 miles.

EXAMPLE-
A remark may be made, "The weather is better than five thousand and five."

c. Instrument/visual approach/s in use. Specify landing runway/s unless the runway is that to which the instrument approach is made.

d. Departure runway/s (to be given only if different from landing runway/s or in the instance of a "departure only" ATIS).

e. Taxiway closures which affect the entrance or exit of active runways, other closures which impact airport operations, other NOTAM's and PIREP's pertinent to operations in the terminal area. Inform pilots of where hazardous weather is occurring and how the information may be obtained. Include available information of known bird activity.

REFERENCE-
FAAO 7110.65, Bird Activity Information, Para 2-1-22.

f. Runway braking action or friction reports when provided. Include the time of the report and a word describing the cause of the runway friction problem.

PHRASEOLOGY-
RUNWAY (number) MU (first value, second value, third value) AT (time), (cause).

EXAMPLE-
"Runway Two Seven, MU forty-two, forty-one, twenty-eight at one zero one eight Zulu, ice."

REFERENCE-
FAAO 7110.65, Braking Action Advisories, Para 3-3-5.

g. Other optional information as local conditions dictate in coordination with ATC. This may include such items as VFR arrival frequencies, temporary airport conditions, LAHSO operations being conducted, or other perishable items that may appear only for a matter of hours or a few days on the ATIS message.

h. Low level wind shear (LLWS) when reported by pilots or is detected on a low level wind shear alert system (LLWAS).

REFERENCE-
FAAO 7110.65, Low Level Wind Shear Advisories, Para 3-1-8.

i. A statement which advises the pilot to read back instructions to hold short of a runway. The air traffic manager may elect to remove this requirement 60 days after implementation provided that removing the statement from the ATIS does not result in increased requests from aircraft for read back of hold short instructions.

j. Instructions for the pilot to acknowledge receipt of the ATIS message by informing the controller on initial contact.

EXAMPLE-
"Boston Tower Information Delta. One four zero zero Zulu. Wind two five zero at one zero. Visibility one zero. Ceiling four thousand five hundred broken. Temperature three four. Dew point two eight. Altimeter three zero one zero. ILS-DME Runway Two Seven Approach in use. Departing Runway Two Two Right. Hazardous Weather Information for (geographical area) available on HIWAS, Flight Watch, or Flight Service Frequencies. Advise on initial contact you have Delta."

Section 10. Team Position Responsibilities

2-10-1. EN ROUTE SECTOR TEAM POSITION RESPONSIBILITIES

a. En Route Sector Team Concept and Intent:

1. There are no absolute divisions of responsibilities regarding position operations. The tasks to be completed remain the same whether one, two, or three people are working positions within a sector. The team, as a whole, has responsibility for the safe and efficient operation of that sector.

2. The intent of the team concept is not to hold the team accountable for the action of individual members, in the event of an operational accident/incident.

b. *Terms.* The following terms will be used in en route facilities for the purpose of standardization:

1. *Sector.* The area of control responsibility (delegated airspace) of the en route sector team, and the team as a whole.

2. *Radar Position (R).* That position which is in direct communication with the aircraft and which uses radar information as the primary means of separation.

3. *Radar Associate (RA).* That position sometimes referred to as "D-Side" or "Manual Controller."

4. *Radar Coordinator Position (RC).* That position sometimes referred to as "Coordinator," "Tracker," or "Handoff Controller" (En Route).

5. *Radar Flight Data (FD).* That position commonly referred to as "Assistant Controller" or "A-Side" position.

6. *Nonradar Position (NR).* That position which is usually in direct communication with the aircraft and which uses nonradar procedures as the primary means of separation.

c. Primary responsibilities of the En Route Sector Team Positions:

1. ***Radar Position:***

(a) Ensure separation.

(b) Initiate control instructions.

(c) Monitor and operate radios.

(d) Accept and initiate automated handoffs.

(e) Assist the radar associate position with nonautomated handoff actions when needed.

(f) Assist the radar associate position in coordination when needed.

(g) Scan radar display. Correlate with flight progress strip information or User Request Evaluation Tool Core Capability Limited Deployment (URET CCLD) data, as applicable.

(h) Ensure computer entries are completed on instructions or clearances you issue or receive.

(i) Ensure strip marking and/or URET CCLD entries are completed on instructions or clearances you issue or receive.

(j) Adjust equipment at radar position to be usable by all members of the team.

(k) The radar controller shall not be responsible for G/G communications when precluded by VSCS split functionality.

2. ***Radar Associate Position:***

(a) Ensure separation.

(b) At URET CCLD facilities, use URET CCLD information to plan, organize, and expedite the flow of traffic.

(c) Initiate control instructions.

(d) Operate interphones.

(e) Accept and initiate nonautomated handoffs, and ensure radar position is made aware of the actions.

(f) Assist the radar position by accepting or initiating automated handoffs which are necessary for the continued smooth operation of the sector, and ensure that the radar position is made immediately aware of any action taken.

(g) Coordinate, including pointouts.

(h) Monitor radios when not performing higher priority duties.

(i) Scan flight progress strips and/or URET CCLD data. Correlate with radar data.

(j) Manage flight progress strips and/or URET CCLD flight data.

(k) Ensure computer entries are completed on instructions issued or received. Enter instructions

issued or received by the radar position when aware of those instructions.

(l) As appropriate, ensure strip marking and/or URET CCLD entries are completed on instructions issued or received, and record instructions issued or received by the radar position when aware of them.

(m) Adjust equipment at radar associate position to be usable by all members of the team.

(n) Where authorized, perform URET CCLD data entries to keep the activation status of designated URET CCLD Airspace Configuration Elements current.

3. ***Radar Coordinator Position:***

(a) Perform interfacility/intrafacility/sector/position coordination of traffic actions.

(b) Advise the radar position and the radar associate position of sector actions required to accomplish overall objectives.

(c) Perform any of the functions of the en route sector team which will assist in meeting situation objectives.

(d) The RC controller shall not be responsible for monitoring or operating radios when precluded by VSCS split functionality.

NOTE-
The Radar Position has the responsibility for managing the overall sector operations, including aircraft separation and traffic flows. The Radar Coordinator Position assumes responsibility for managing traffic flows and the Radar Position retains responsibility for aircraft separation when the Radar Coordinator Position is staffed.

4. ***Radar Flight Data:***

(a) Operate interphone.

(b) Assist Radar Associate Position in managing flight progress strips.

(c) Receive/process and distribute flight progress strips.

(d) Ensure flight data processing equipment is operational, except for URET CCLD capabilities.

(e) Request/receive and disseminate weather, NOTAM's, NAS status, traffic management, and Special Use Airspace status messages.

(f) Manually prepare flight progress strips when automation systems are not available.

(g) Enter flight data into computer.

(h) Forward flight data via computer.

(i) Assist facility/sector in meeting situation objectives.

5. ***En Route Nonradar Position:***

(a) Ensure separation.

(b) Initiate control instructions.

(c) Monitor and operate radios.

(d) Accept and initiate transfer of control, communications, and flight data.

(e) Ensure computer entries are completed on instructions or clearances issued or received.

(f) Ensure strip marking is completed on instructions or clearances issued or received.

(g) Facilities utilizing nonradar positions may modify the standards contained in the radar associate, radar coordinator, and radar flight data sections to accommodate facility/sector needs, i.e., nonradar coordinator, nonradar data positions.

2-10-2. TERMINAL RADAR/NONRADAR TEAM POSITION RESPONSIBILITIES

a. *Terminal Radar Team Concept and Intent:*

1. There are no absolute divisions of responsibilities regarding position operations. The tasks to be completed remain the same whether one, two, or three people are working positions within a facility/sector. The team, as a whole, has responsibility for the safe and efficient operation of that facility/sector.

2. The intent of the team concept is not to hold the team accountable for the action of individual members in the event of an operational error/deviation.

b. *Terms.* The following terms will be used in terminal facilities for the purposes of standardization.

1. *Facility/Sector.* The area of control responsibility (delegated airspace) of the radar team, and the team as a whole.

2. *Radar Position (R).* That position which is in direct communication with the aircraft and which uses radar information as the primary means of separation.

3. *Radar Associate Position (RA).* That position commonly referred to as "Handoff Controller" or "Radar Data Controller."

4. *Radar Coordinator Position (RC).* That position commonly referred to as "Coordinator," "Tracker," "Sequencer," or "Overhead."

5. *Radar Flight Data (FD).* That position commonly referred to as "Flight Data."

6. *Nonradar Position (NR).* That position which is usually in direct communication with the aircraft and which uses nonradar procedures as the primary means of separation.

c. Primary Responsibilities of the Terminal Radar Team Positions:

1. ***Radar Position:***

(a) Ensure separation.

(b) Initiate control instructions.

(c) Monitor and operate radios.

(d) Accept and initiate automated handoffs.

(e) Assist the Radar Associate Position with nonautomated handoff actions when needed.

(f) Assist the Radar Associate Position in coordination when needed.

(g) Scan radar display. Correlate with flight progress strip information.

(h) Ensure computer entries are completed on instructions or clearances you issue or receive.

(i) Ensure strip marking is completed on instructions or clearances you issue or receive.

(j) Adjust equipment at Radar Position to be usable by all members of the team.

2. ***Radar Associate Position:***

(a) Ensure separation.

(b) Initiate control instructions.

(c) Operate interphones.

(d) Maintain awareness of facility/sector activities.

(e) Accept and initiate nonautomated handoffs.

(f) Assist the Radar Position by accepting or initiating automated handoffs which are necessary for the continued smooth operation of the facility/sector and ensure that the Radar Position is made immediately aware of any actions taken.

(g) Coordinate, including point outs.

(h) Scan flight progress strips. Correlate with radar data.

(i) Manage flight progress strips.

(j) Ensure computer entries are completed on instructions issued or received, and enter instructions issued or received by the Radar Position aware of those instructions.

(k) Ensure strip marking is completed on instructions issued or received, and write instructions issued or received by the Radar Position when aware of them.

(l) Adjust equipment at Radar Associate Position to be usable by all members of the Radar Team.

3. ***Radar Coordinator Position:***

(a) Perform interfacility/sector/position coordination of traffic actions.

(b) Advise the Radar Position and the Radar Associate Position of facility/sector actions required to accomplish overall objectives.

(c) Perform any of the functions of the Radar Team which will assist in meeting situation objectives.

NOTE-
The Radar Position has the responsibility of managing the overall sector operations, including aircraft separation and traffic flows. The Radar Coordinator Position assumes responsibility for managing traffic flows and the Radar Position retains responsibility for aircraft separation when the Radar Coordinator Position is staffed.

4. ***Radar Flight Data:***

(a) Operate interphones.

(b) Process and forward flight plan information.

(c) Compile statistical data.

(d) Assist facility/sector in meeting situation objectives.

5. ***Terminal Nonradar Position:***

(a) Ensure separation.

(b) Initiate control instructions.

(c) Monitor and operate radios.

(d) Accept and initiate transfer of control, communications and flight data.

(e) Ensure computer entries are completed on instructions or clearances issued or received.

(f) Ensure strip marking is completed on instructions or clearances issued or received.

(g) Facilities utilizing nonradar positions may modify the standards contained in the radar associate, radar coordinator, and radar flight data sections to accommodate facility/sector needs, i.e. nonradar coordinator, nonradar data positions.

2-10-3. TOWER TEAM POSITION RESPONSIBILITIES

a. *Tower Team Concept and Intent:*

1. There are no absolute divisions of responsibilities regarding position operations. The tasks to be completed remain the same whether one, two, or three people are working positions within a tower cab. The team as a whole has responsibility for the safe and efficient operation of that tower cab.

2. The intent of the team concept is not to hold the team accountable for the action of individual members in the event of an operational error/deviation.

b. *Terms:* The following terms will be used in terminal facilities for the purpose of standardization.

1. *Tower Cab:* The area of control responsibility (delegated airspace and/or airport surface areas) of the tower team, and the team as a whole.

2. *Tower Position(s) (LC or GC):* That position which is in direct communications with the aircraft and ensures separation of aircraft in/on the area of jurisdiction.

3. *Tower Associate Position(s):* That position commonly referred to as "Local Assist," "Ground Assist," "Local Associate," or "Ground Associate."

4. *Tower Cab Coordinator Position (CC):* That position commonly referred to as "Coordinator."

5. *Flight Data (FD):* That position commonly referred to as "Flight Data."

6. *Clearance Delivery (CD):* That position commonly referred to as "Clearance."

c. Primary responsibilities of the Tower Team Positions:

1. ***Tower Position(s) (LC or GC):***

(a) Ensure separation.

(b) Initiate control instructions.

(c) Monitor and operate communications equipment.

(d) Utilize tower radar display(s).

(e) Utilize alphanumerics.

(f) Assist the Tower Associate Position with coordination.

(g) Scan tower cab environment.

(h) Ensure computer entries are completed for instructions or clearances issued or received.

(i) Ensure strip marking is completed for instructions or clearances issued or received.

(j) Process and forward flight plan information.

(k) Perform any functions of the Tower Team which will assist in meeting situation objectives.

2. ***Tower Associate Position(s):***

(a) Ensure separation.

(b) Operate interphones.

(c) Maintain awareness of tower cab activities.

(d) Utilize alphanumerics.

(e) Utilize tower radar display(s).

(f) Assist Tower Position by accepting/initiating coordination for the continued smooth operation of the tower cab and ensure that the Tower Position is made immediately aware of any actions taken.

(g) Manage flight plan information.

(h) Ensure computer entries are completed for instructions issued or received and enter instructions issued or received by a Tower Position.

(i) Ensure strip marking is completed for instructions issued or received and enter instructions issued or received by a Tower Position.

3. ***Tower Coordinator Position:***

(a) Perform interfacility/ position coordination for traffic actions.

(b) Advise the tower and the Tower Associate Position(s) of tower cab actions required to accomplish overall objectives.

(c) Perform any of the functions of the Tower Team which will assist in meeting situation objectives.

NOTE-
The Tower Positions have the responsibility for aircraft separation and traffic flows. The Tower Coordinator Position assumes responsibility for managing traffic flows and the Tower Positions retain responsibility for aircraft separation when the Tower Coordinator Position is staffed.

4. ***Flight Data:***

(a) Operate interphones.

(b) Process and forward flight plan information.

(c) Compile statistical data.

(d) Assist tower cab in meeting situation objectives.

(e) Observe and report weather information.

(f) Utilize alphanumerics.

5. ***Clearance Delivery:***

(a) Operate communications equipment.

(b) Process and forward flight plan information.

(c) Issue clearances and ensure accuracy of pilot read back.

(d) Assist tower cab in meeting situation objectives.

(e) Operate tower equipment.

(f) Utilize alphanumerics.

NOTE-
The Tower Positions have the responsibility for aircraft separation and traffic flows. The Tower Coordinator Position assumes responsibility for managing traffic flows and the Tower Positions retain responsibility for aircraft separation when the Tower Coordinator Position is staffed.